SAN FRANCISCO DEPARTMENT OF CITY PLANNING 100 LARKIN STREET · SAN FRANCISCO, CALIFORNIA 9410

DRAFT
ENVIRONMENTAL IMPACT REPORT

EE 80.110

2222 23RD STREET

PUBLICATION DATE: MARCH 27, 1981

PUBLIC COMMENT PERIOD: MARCH 30, 1981

THROUGH MAY 14, 1981

PUBLIC HEARING DATE: APRIL 30, 1981

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Written comments should be sent to the
Office of Environmental Review
45 Hyde Street
San Francisco, California 94102

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I. SUMMARY

A Planned Unit Development (PUD), consisting of 132 condominiums, 8500 square feet of neighborhood commercial space, and 161 parking spaces, is proposed for the former paint manufacturing site including the entire block bordered by Kansas, 23rd, Rhode Island and 24th Sts. The project would include rezoning from RH-2 (House, Two-Family) to RM-2 (Mixed Residential, Moderate Density), to be requested by project sponsor. A building at Kansas and 24th Sts. would be remodeled into housing units, and a chimney on Rhode Island, listed in the Department of City Planning Architectural Survey, would be preserved. The site is on the east edge of the James Lick Freeway and is subject to Freeway noise.

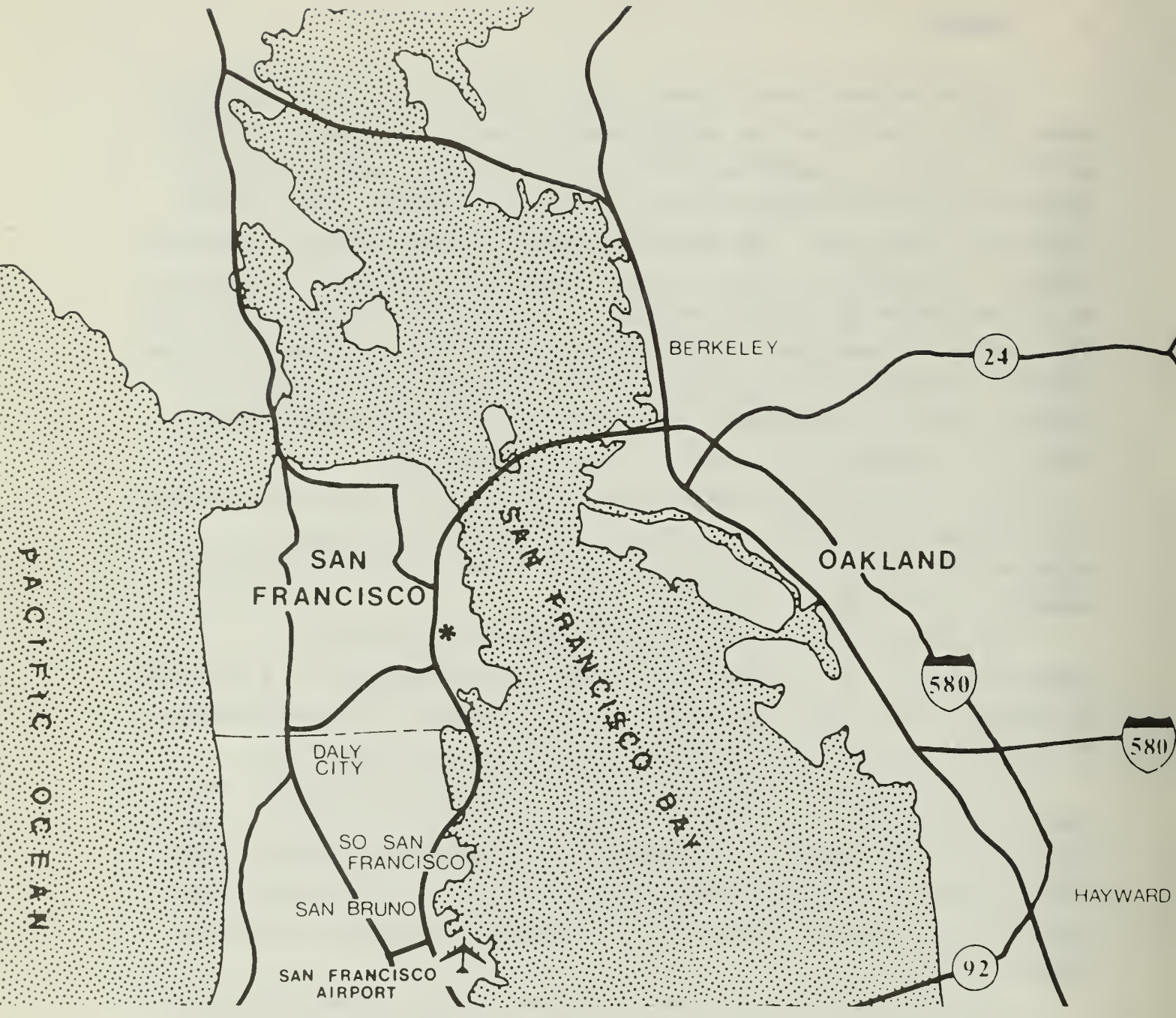
The project design would generally maintain the present site development configuration with a perimeter of structures surrounding central, common open space. New construction would comply with the 40 ft. height limit.

The project would comply with Master Plan policies encouraging the use of underused land and development of a variety of housing unit types by provision of 13 studios, 29 one-bedroom, 81 two-bedroom and 9 three-bedroom units on an unused site.

The project would generate about 740 vehicle trips per day. The four bounding streets would remain at Level of Service A with this additional traffic; and freedom of pedestrian movement would not be affected. Off-street parking within the project and now unused street parking space would accommodate project-generated parking needs.

The relatively high noise levels on the west side of the project would be mitigated by use of sound attenuating construction materials to bring interior noise levels to a non intrusive level.

Toxic materials in containers on the site have been removed. Demolition and renovation will be conducted so as to prevent dispersion of toxic dust in the neighborhood. The incinerator will be sealed to prevent access to toxic materials inside. Heavy metal paint ingredients spilled on the site presently contaminate the soil. After removal of the concrete slabs which cover most of



Regional Location

N

0 5 miles

* Project

Exhibit No. 1

the site, a soil analysis program and appropriate mitigation measures will be developed in consultation with the Hazardous Materials Section of the State Department of Health Services. Electrical equipment containing PCBs and PCB spills will be removed prior to demolition.

Some neighborhood groups have expressed concerns over the potential effect of the proposed project on housing price inflation in the Potrero Hill area.

Four alternatives to the proposed project have been considered, including the No Project Alternative. A Low Density Alternative, complying with present RH-2 zoning, could include 53 units which would be more expensive than the project because of the small number of units and absence of remodeled units. A High Density Alternative, requiring reclassification to RM-3 rather than RM-2, could include 200 units. This Alternative would be out of scale with surrounding development. A Mixed Housing Alternative, evenly divided between market rate, moderate income condominiums and Section 8 subsidized low income rental units, was also considered and found to not be economically feasible.

II. PROJECT DESCRIPTION

A. Sponsor and Objectives

The project sponsor is "2222 23rd Street," a San Francisco partnership, and the project architect is Architects Associated.[1] The objectives of the sponsor are to provide housing, to provide a return on the investors' money, and to produce a project sensitive to the site-specific issues discussed in the DEIR.

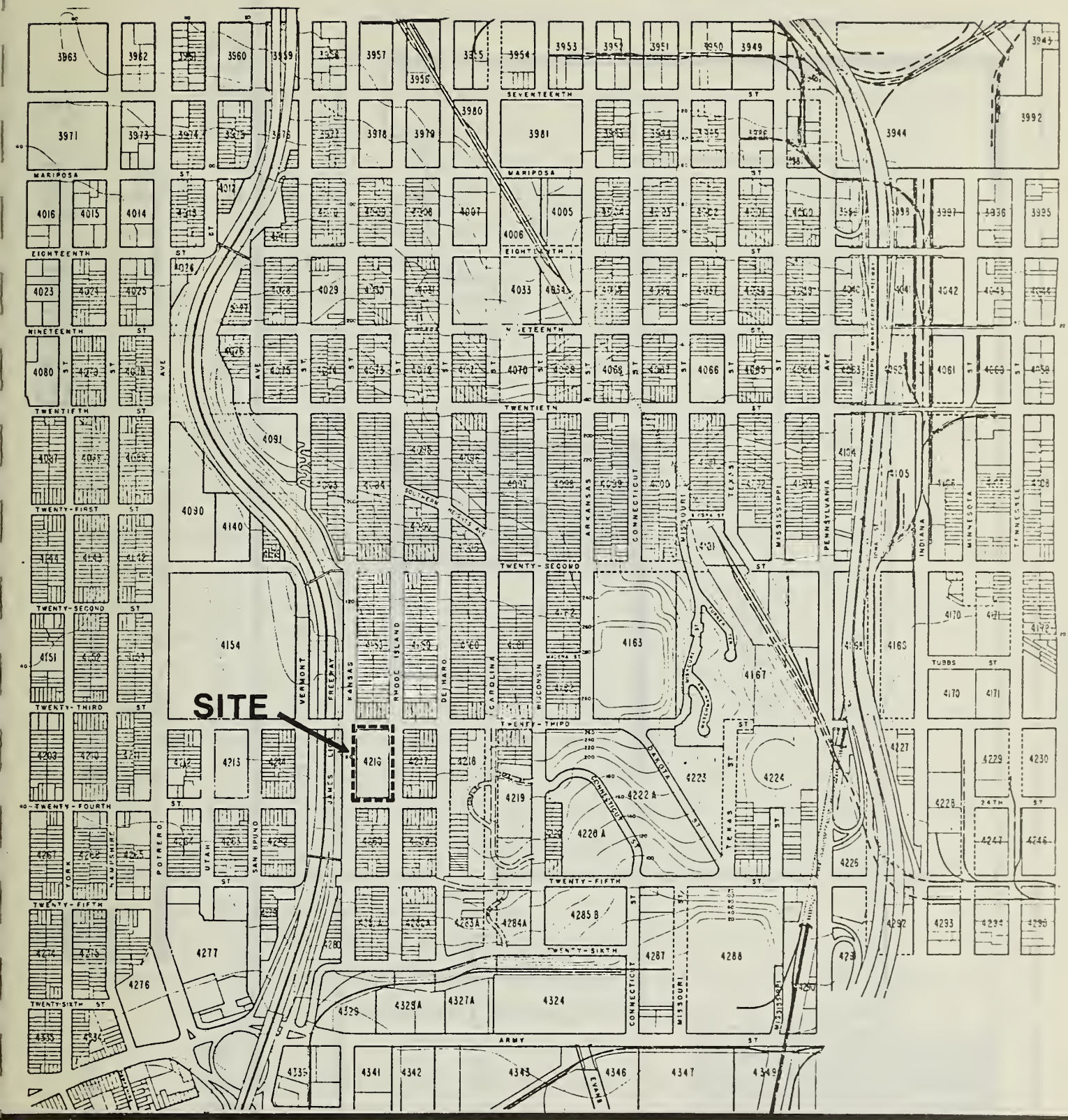
B. Location

The project site is an 80,000 square foot, 1-block area at the western base of Potrero Hill in southeastern San Francisco (see Exhibit 2, page 5). The site includes the entire Assessor's Block 4216, Lot 1, bounded on the east by Kansas Street, on the west by Rhode Island Street, on the south by 24th Street, and on the north by 23rd Street (see Exhibit 3, page 6).

C. Description

The project would consist of 132 condominiums, 8,500 square feet of neighborhood commercial establishments and 161 parking spaces. Ninety-five new condominiums would occupy 104,700 square feet on four levels (34,400 sq.ft. of site), and 34,980 square feet in the existing buildings (warehouse and garage) would be rehabilitated into 37 condominiums. The development costs of the project, including demolition, are estimated at $14,700,000 as of March, 1981. Construction costs would be about $10.2 million of the total (see Appendix A, page 120).

The project is in an RH-2 (House, Two-Family) district, containing predominantly two-family dwellings. Project sponsor would request a zoning reclassification to RM-2 (Mixed Residential, Moderate Density). The proposed project is within a 40 X Height and Bulk District, which limits development to a height of 40 feet and sets no bulk limits.

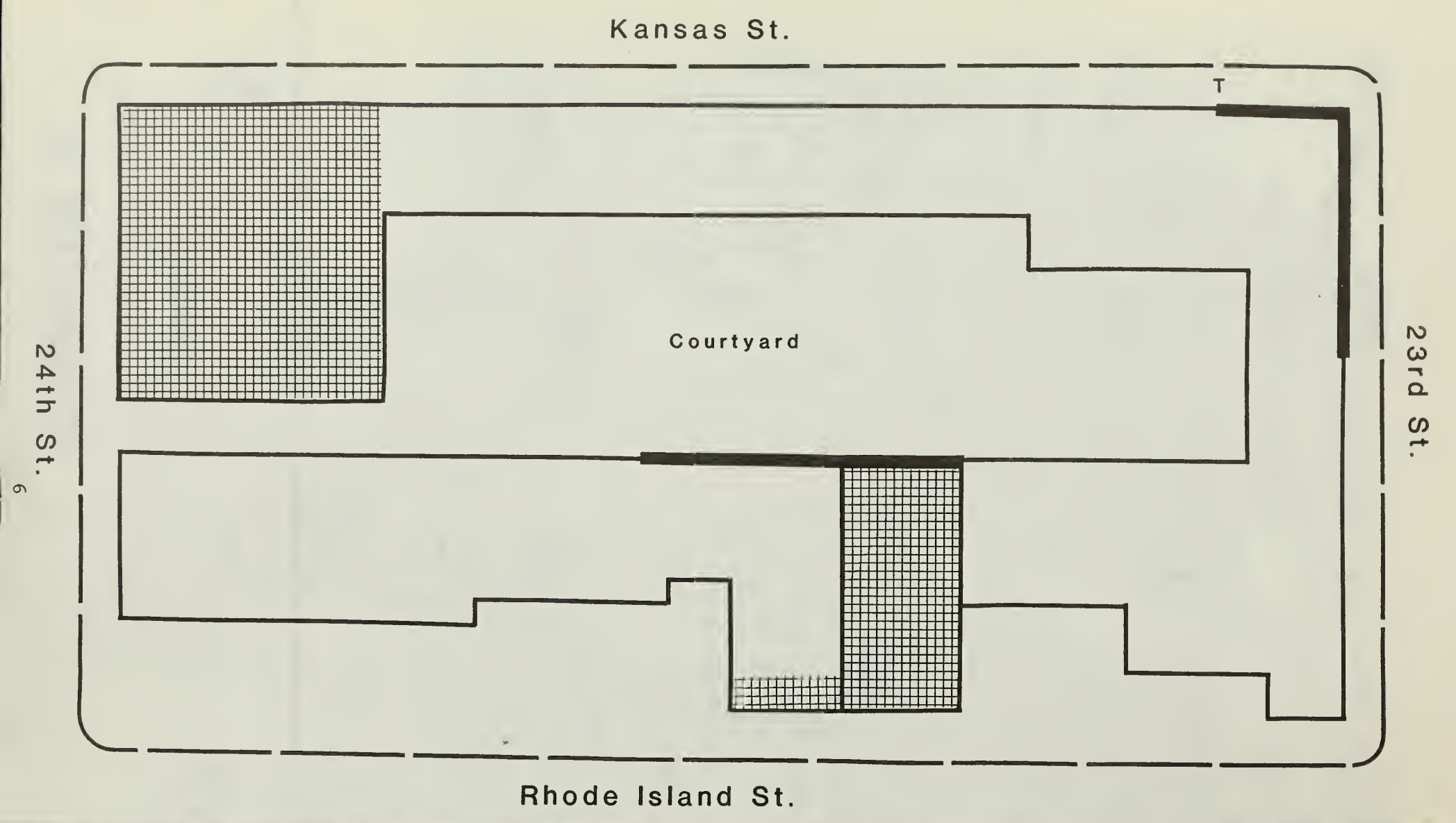


Site Location

N

0 600'

Exhibit No. 2



Existing Site

T - Transit Stop with exclusive loading area

N

Sidewalk

Existing Walls to be Retained

0 40'

Building Line

Existing Structures to be Retained

Exhibit No. 3

The proposed project would consist of 4 stories of construction and parking and commercial development at the Kansas Street grade, below a first floor common to the entire project. The interior of the existing building at Kansas and 24th Streets would be remodeled. The penthouse on this building would be removed. The 24th Street elevation of the project (Exhibit 6, page 10) shows the gradient along that side of the proposed project. Due to the site slope, there would actually be 3 different "first floors": on Kansas Street (the lowest); on 24th Street; and on Rhode Island Street (the highest). These differences in elevation, plus the nature of the surrounding development fronting each street, have resulted in different architectural treatments of the elevations.

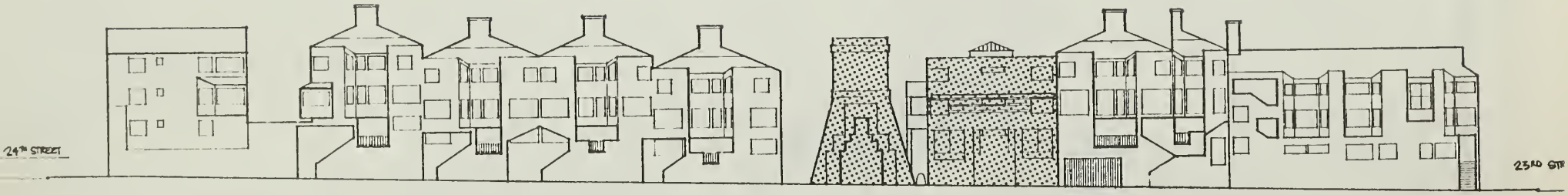
The Kansas Street side of the project would face the James Lick Freeway. This side of the project has been designed to minimize residents' exposure to the noise and air pollutants from the Freeway (Exhibit 13, page 20 shows proximity of project to Freeway). The Rhode Island Street side of the project (Exhibit 4, page 8) would front on a 2- to 3-story residential block. On 23rd Street (Exhibit 5, page 9) the project would face a ground floor grocery store with residential units and 3- to 4-story residential structures. On 24th Street (Exhibit 6, page 10) the project would face 2-story residential structures. Plans for each of the floors of the proposed development are shown in Exhibits 7-11, pages 11-15. Existing buildings to be retained are indicated on the elevations.

The building would be around the perimeter of the site, surrounding common open space which may include a swimming pool.

There are no landmarks, either designated or nominated, on the site.

Units would be in the mix of sizes and prices shown in Table 1, page 16.

Kansas Street



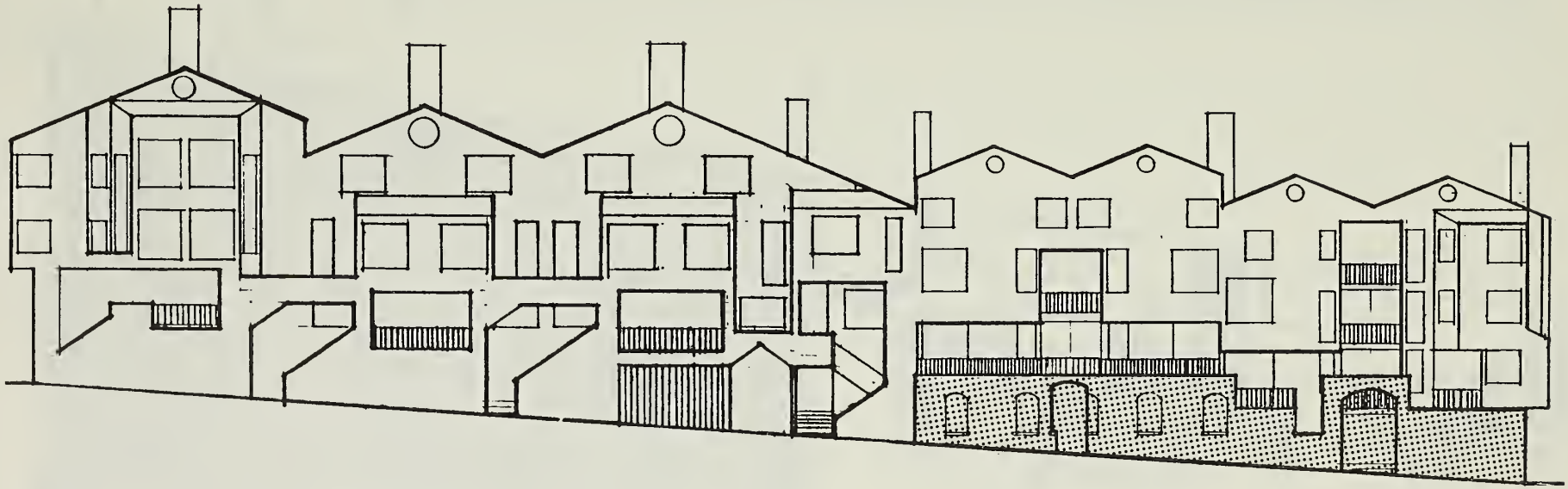
Rhode Island Street

Elevations

existing areas to be retained

0 40'

Exhibit No. 4

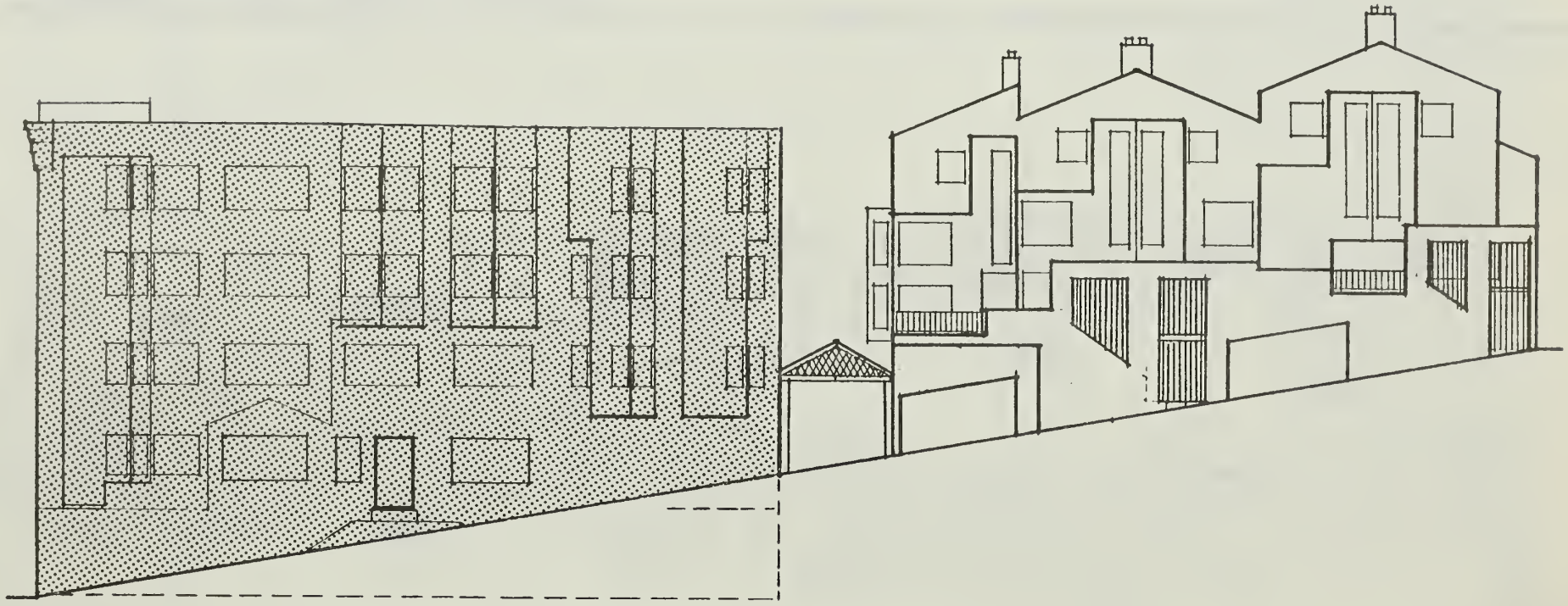


23rd St. Elevation

existing areas to be retained

0 20'

Exhibit No. 5

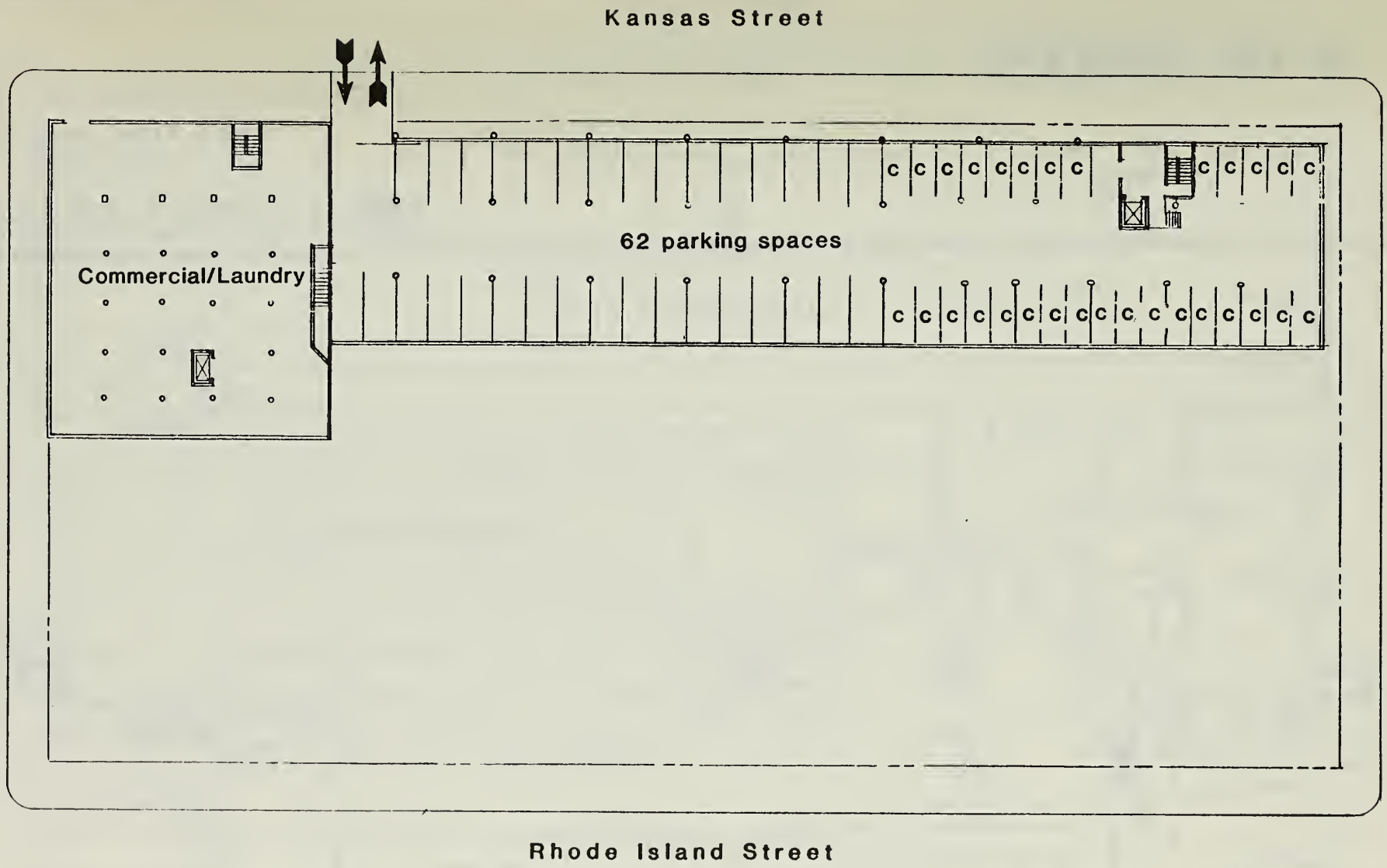


24th St. Elevation

existing areas to be retained

0 20'

Exhibit No. 6



Kansas Street Grade Plan

auto entry

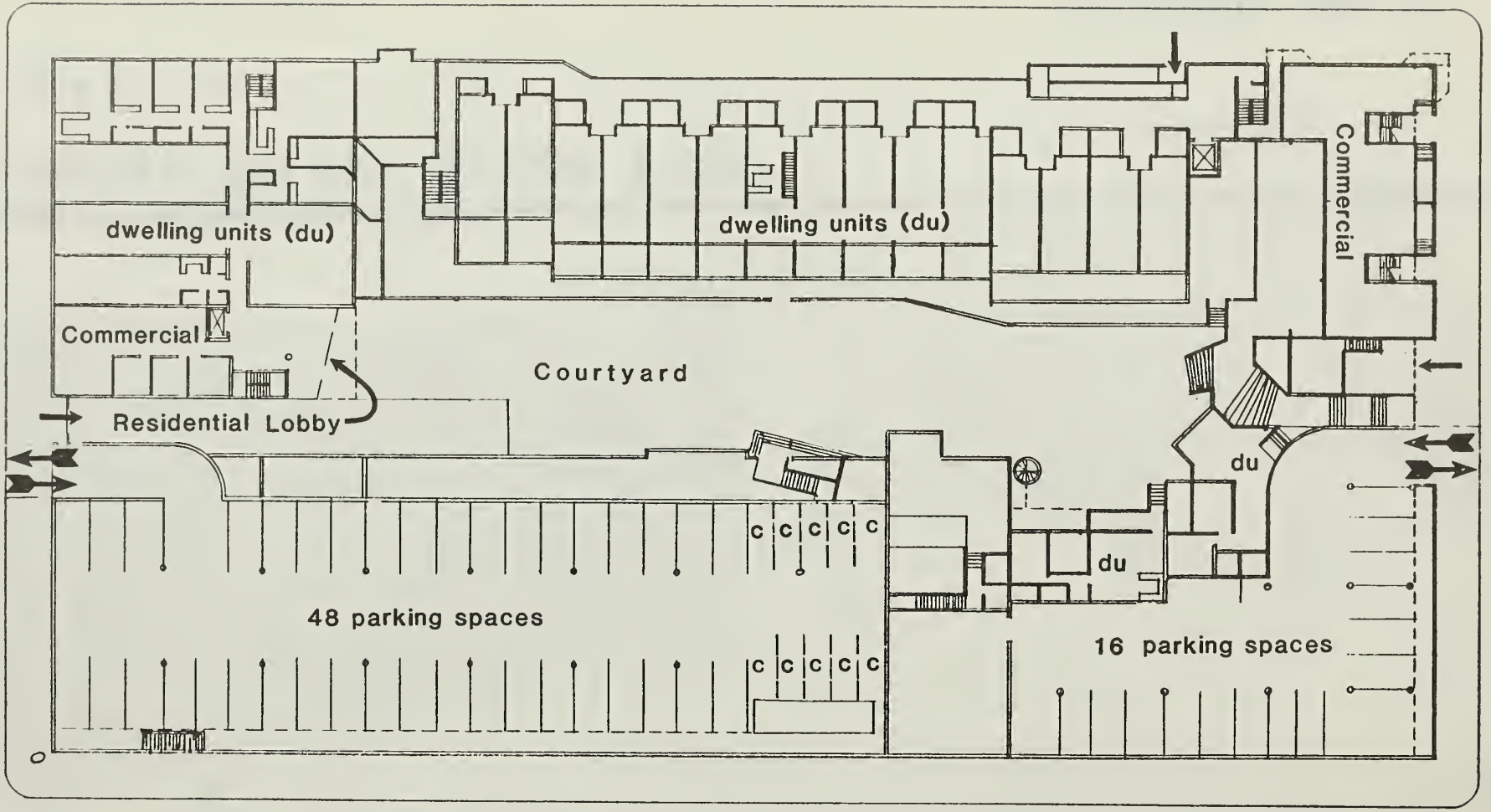
C - compact auto

0 45'

N

Exhibit No. 7

Kansas Street



24th Street

23rd Street

Rhode Island Street

12

First Floor Plan

auto entry

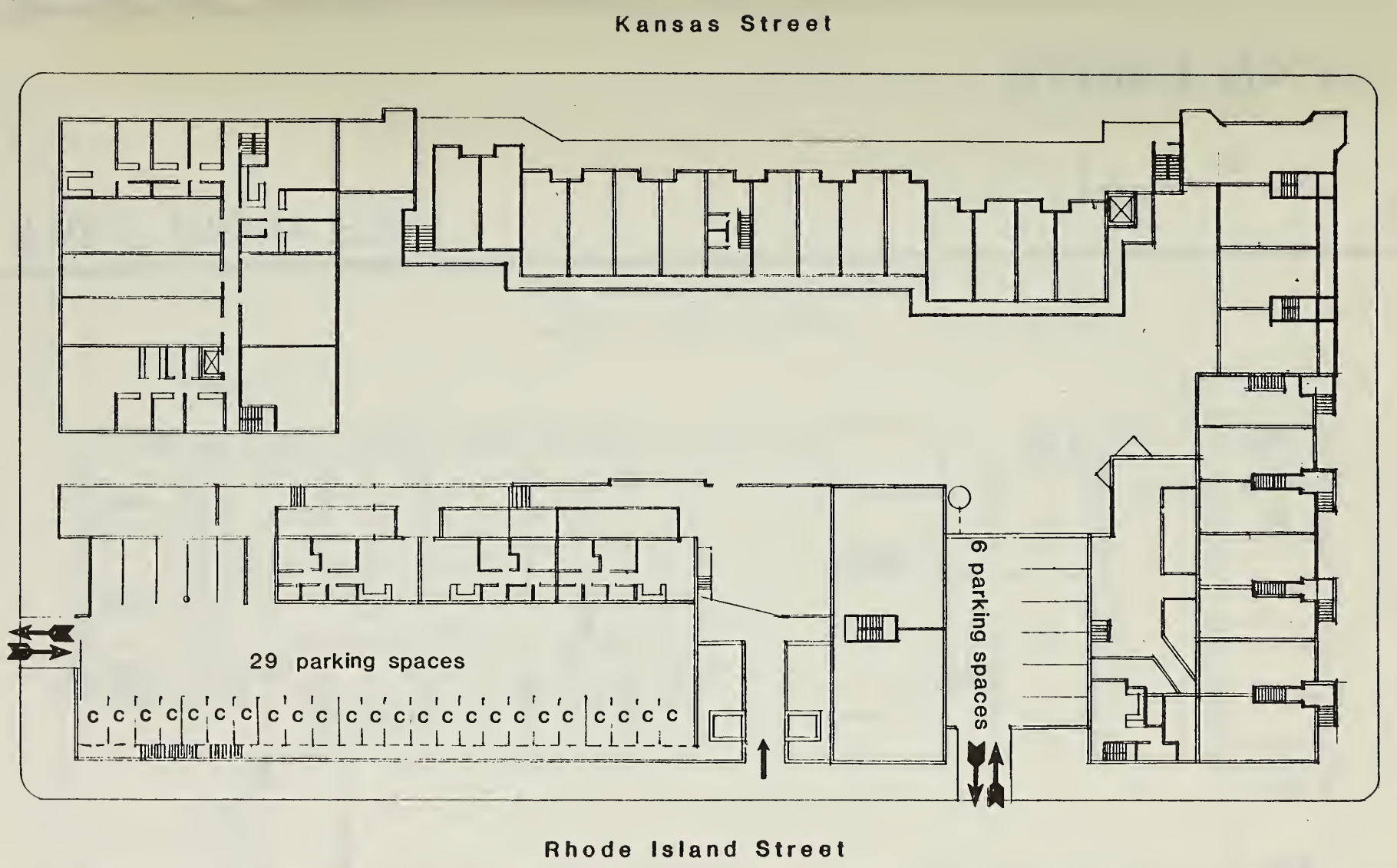
pedestrian entry

C - compact auto

0 45'

N

Exhibit No. 8



Second Floor Plan

auto entry

pedestrian entry

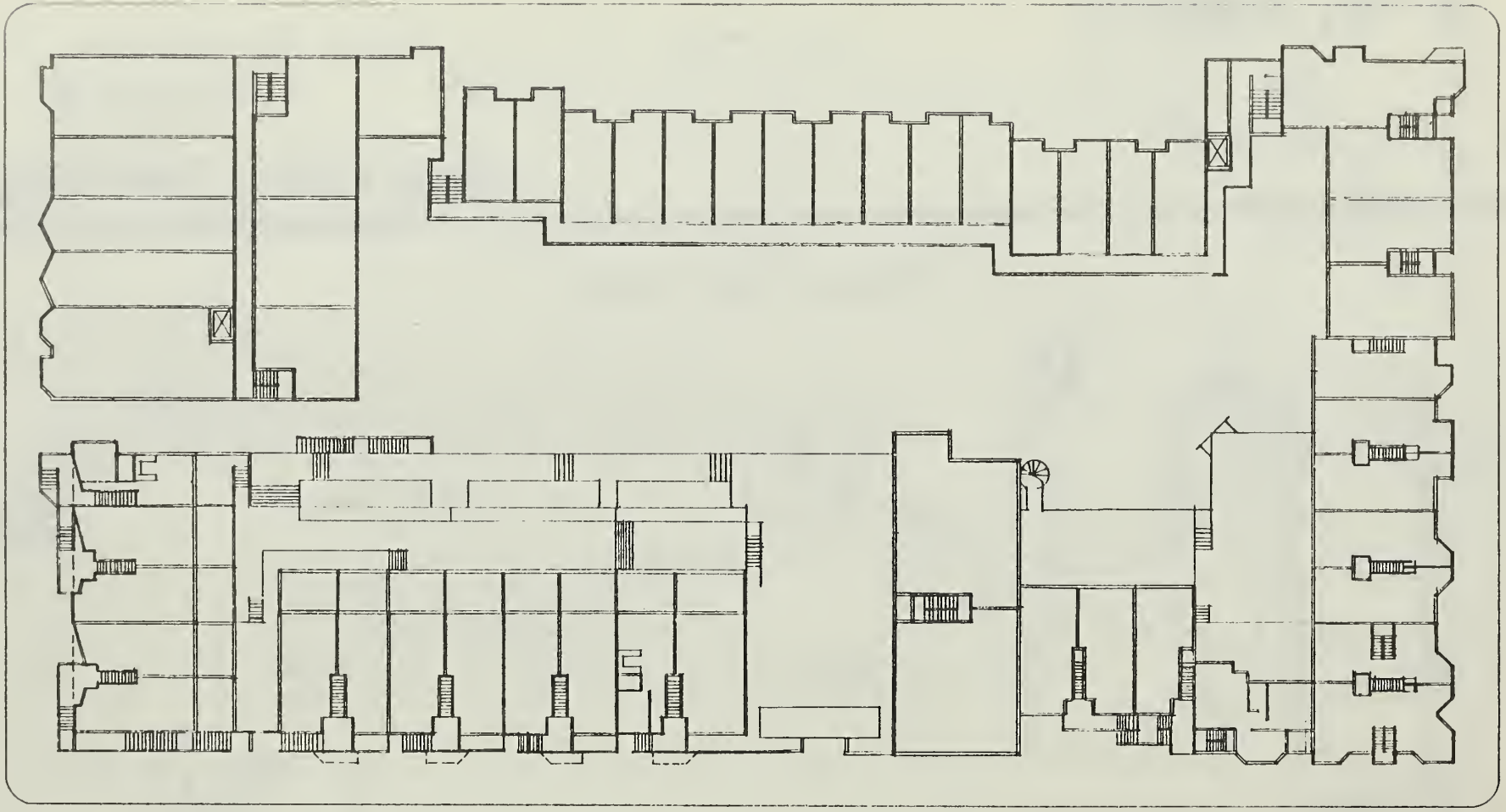
C - compact auto

0 45'

N

Exhibit No. 9

Kansas Street



24th Street

23rd Street

Rhode Island Street

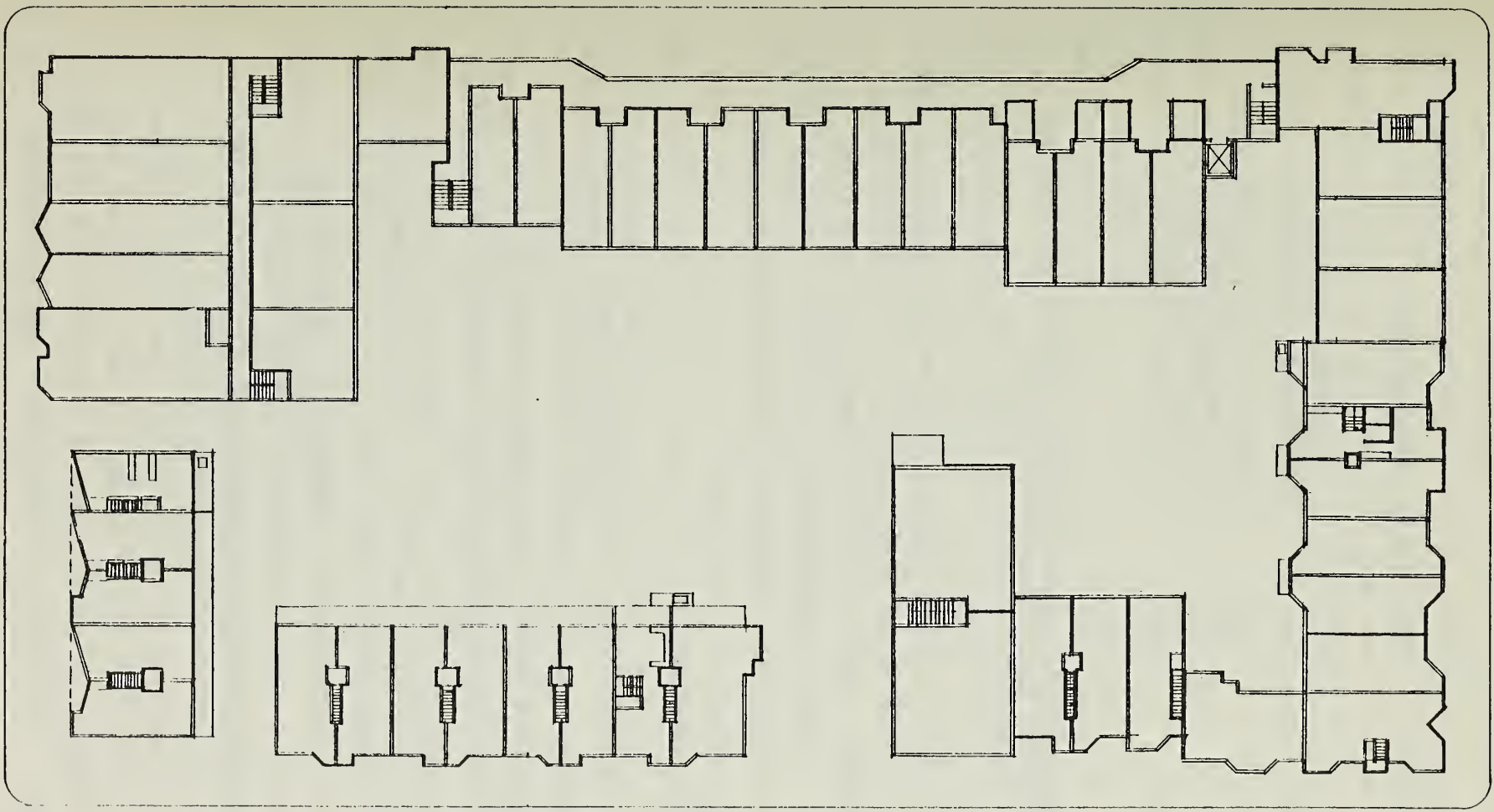
Third Floor Plan

N

0 45'

Exhibit No. 10

Kansas Street



24th Street

23rd Street

Rhode Island Street

Fourth Floor Plan

0 45'

N

Exhibit No. 11

TABLE 1. UNIT TYPES AND PRICES

Unit Types	No.	Expected Prices (March 1981 Dollars)
Studios	13	$ 99,000 - $113,000*
One-Bedroom	29	$ 71,000 - $ 93,000
Two-Bedroom	81	$ 99,000 - $167,000
Three-Bedroom	9	$172,000 - $209,000
Total Units	132	

*Prices of studio units would exceed prices of 1-bedroom units because the studio units would be larger.

The proposed project would take 21 months to complete, from the time building permits are issued. Demolition would take approximately 3 months. New construction and initiation of rehabilitation would take approximately 15 months. Completion of rehabilitation and remodeling would take approximately 3 months.

D. Required Project Approvals

Certification of the Final Environmental Impact Report by the City Planning Commission is required before any other approval actions may take place. The main project approval action would be zoning reclassification and the Conditional Use Authorization.

Zoning reclassification from RH-2 (Residential Two-Family District) to RM-2 (Residential, Mixed District, Two-Family) would be required for the housing density proposed. Approval of a zoning change requires a public hearing and approval by the Planning Commission and adoption by the Board of Supervisors, pursuant to Section 302 of the City Planning Code.

The project is proposed for Conditional Use authorization (approvable by the City Planning Commission) as a Planned Unit Development (PUD), under the provisions of Sections 303 and 304 of the Planning Code. According to the Code, PUD procedures

"are intended for projects on sites of considerable size, developed as integrated units and designed to produce an environment of stable and desirable character which will benefit the occupants, the neighborhood and the city as a whole. In cases of outstanding overall design, complementary to the design and values of the surrounding area, such a project may merit a well reasoned modification of certain of the provisions contained elsewhere in this Code." (Section 304 (a). A PUD must meet the criteria for Conditional Uses in Section 303(c) and elsewhere in the Planning Code. In addition, it must promote applicable objectives of the Master Plan, provide adequate off-street parking and usable open space at least equivalent to Code required open space, and meet other requirements of Planning Code Section 304(d). The project's proposed commercial space also requires Conditional Use approval for a new non residential use in an RM district. This approval would be sought as part of the Conditional Use process for the PUD. Conditional Use approval may be appealed to the Board of Supervisors.

The project must obtain approval as a condominium subdivision, requiring a finding by the Planning Commission that the project would be in conformity with the City's Master Plan (San Francisco Subdivision Code, Section 1332) and approval by the Department of Public Works.

Subdivisions of 50 or more units must provide a minimum of 10% low and moderate income housing, as defined in Section 1341(c) of the San Francisco Subdivision Code, unless the Planning Commission finds that public subsidies are not available (Section 1341(a)).

Notes: Project Description

1. Both are located at 300 Montgomery Street, San Francisco, California 94104.

III. ENVIRONMENTAL SETTING

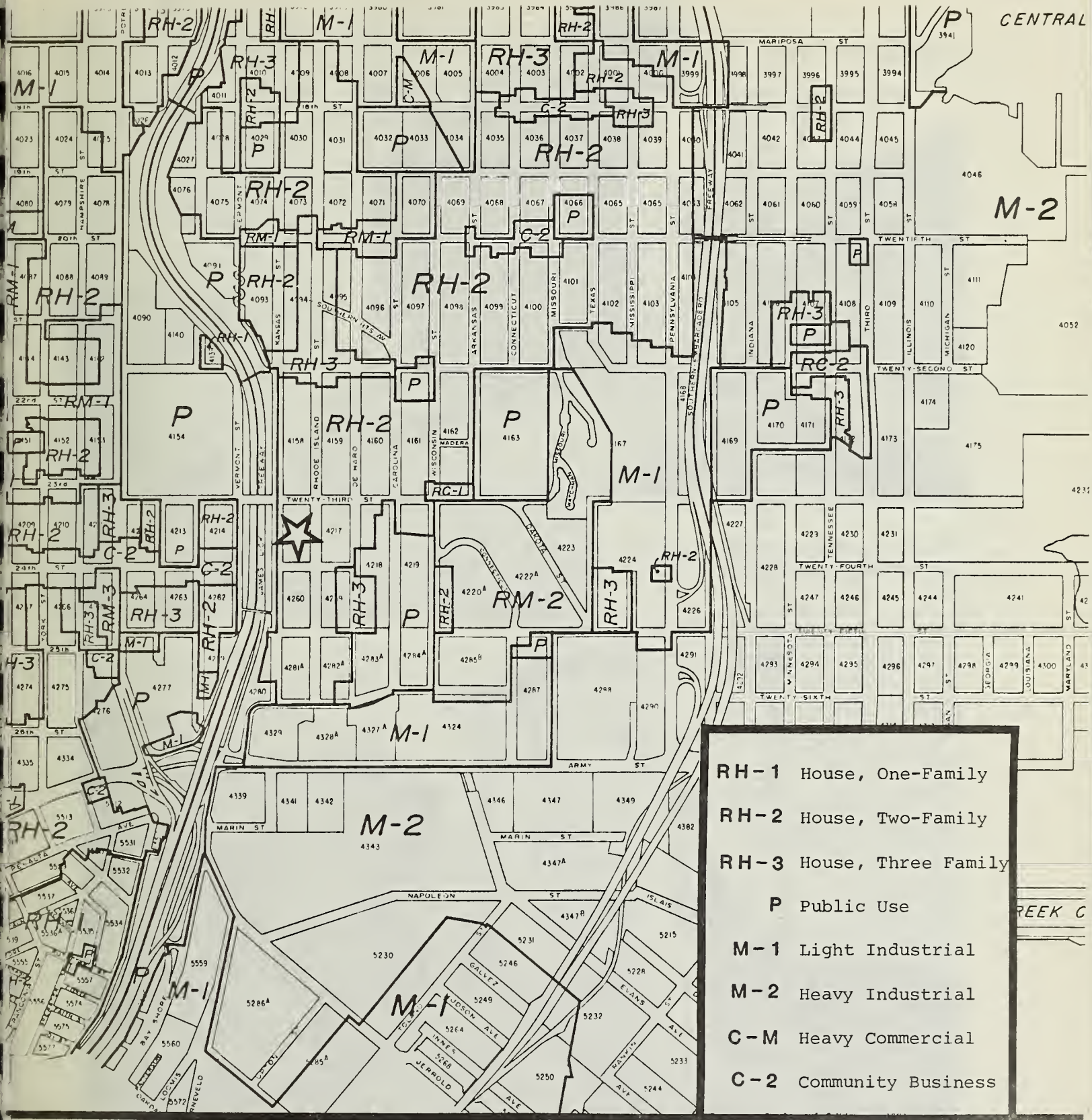
A. Land Use and Zoning

The project block is surrounded on 3 sides by an RH-2 (House, Two-Family) zoning district; two-family homes predominate. To the West is the James Lick Freeway, see Exhibit 12, page 19. With the exception of a grocery store, beneath 6 residential units on the northeast corner of Kansas and 23rd Streets across the street from the site, and the Freeway, both of which are shown in Exhibit 13 (page 20), surrounding land use on the east side of the Freeway is residential. Exhibit 14 (page 21) shows the land uses surrounding the site.

The neighborhood is predominantly made up of 2- and 3-story row houses (Exhibit 15, page 22). Eucalyptus trees line the western edge of Kansas Street along the right-of-way of U.S. 101 (James Lick Freeway), which is approximately 100 feet from the project site. San Francisco General Hospital is approximately 400 feet from the site across the Freeway.

The site contains a complex of 16 structures. The largest building, the warehouse structure, which would be retained, occupies the southwest corner of the site at 24th and Kansas Streets (see Exhibit 6, page 10). Other structures to be retained are the garage, chimney and retaining walls on Rhode Island and the first floor brick wall at the corner of 23rd and Kansas Streets, as shown on Exhibits 4 and 5, pages 8-9.

The so-called Wisconsin Street Housing Site, in the area generally between DeHaro, 23rd, Wisconsin, and 26th Streets, has been proposed for development for many years by various sponsors. The site was used for World War II housing which was demolished and cleared in the 1960's. Exhibit 16 (page 23) shows the relationship of the Wisconsin Street site to the proposed project. The closest part of the Wisconsin site, at DeHaro and



Zoning

☆ Site

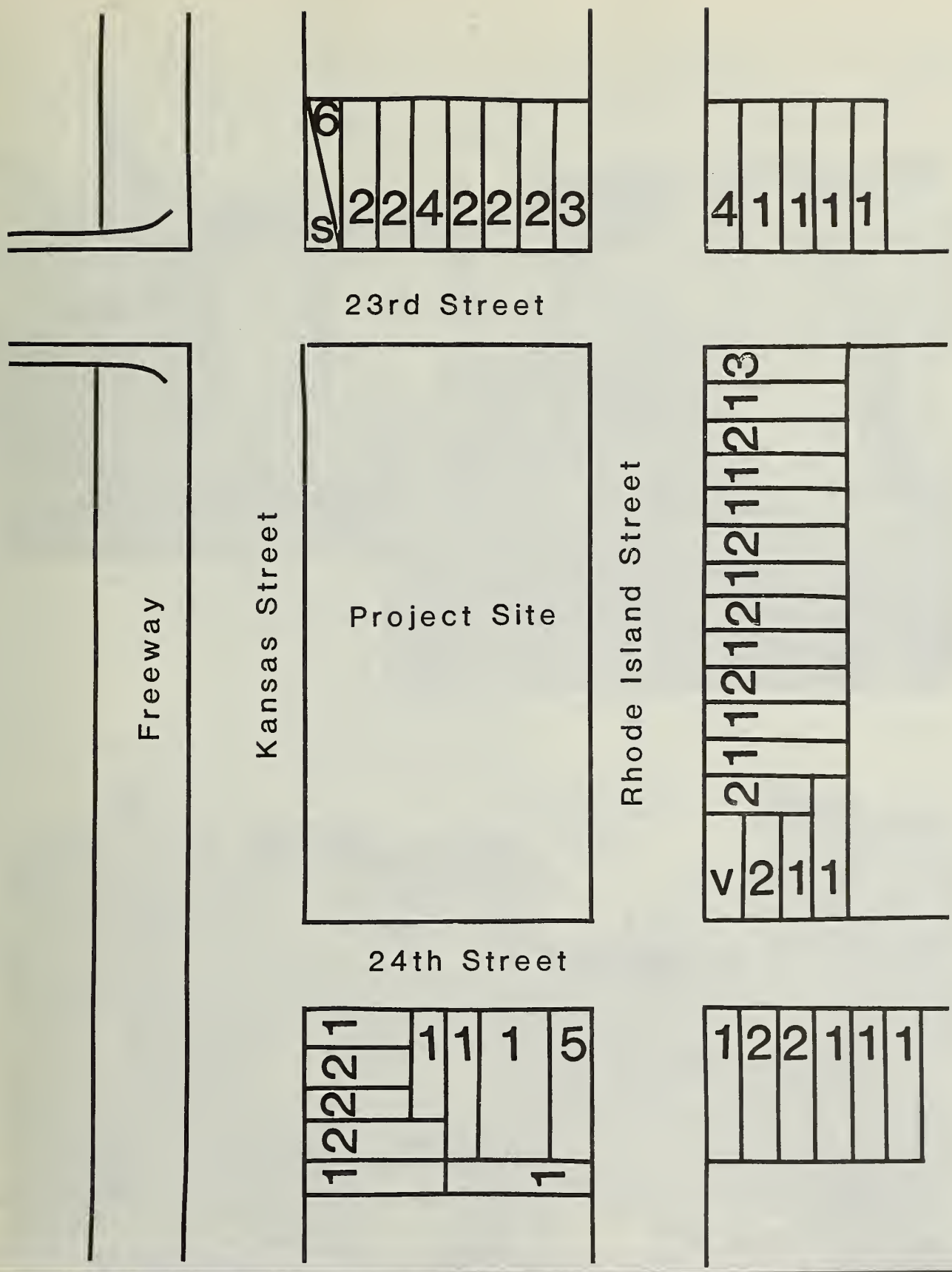
Source: Zoning Map of the City and County of San Francisco

Exhibit No. 12

View showing distance between site and freeway.

View from site of Kansas St. and 23rd St. looking north.

Exhibit No. 13



Existing Land Use

N

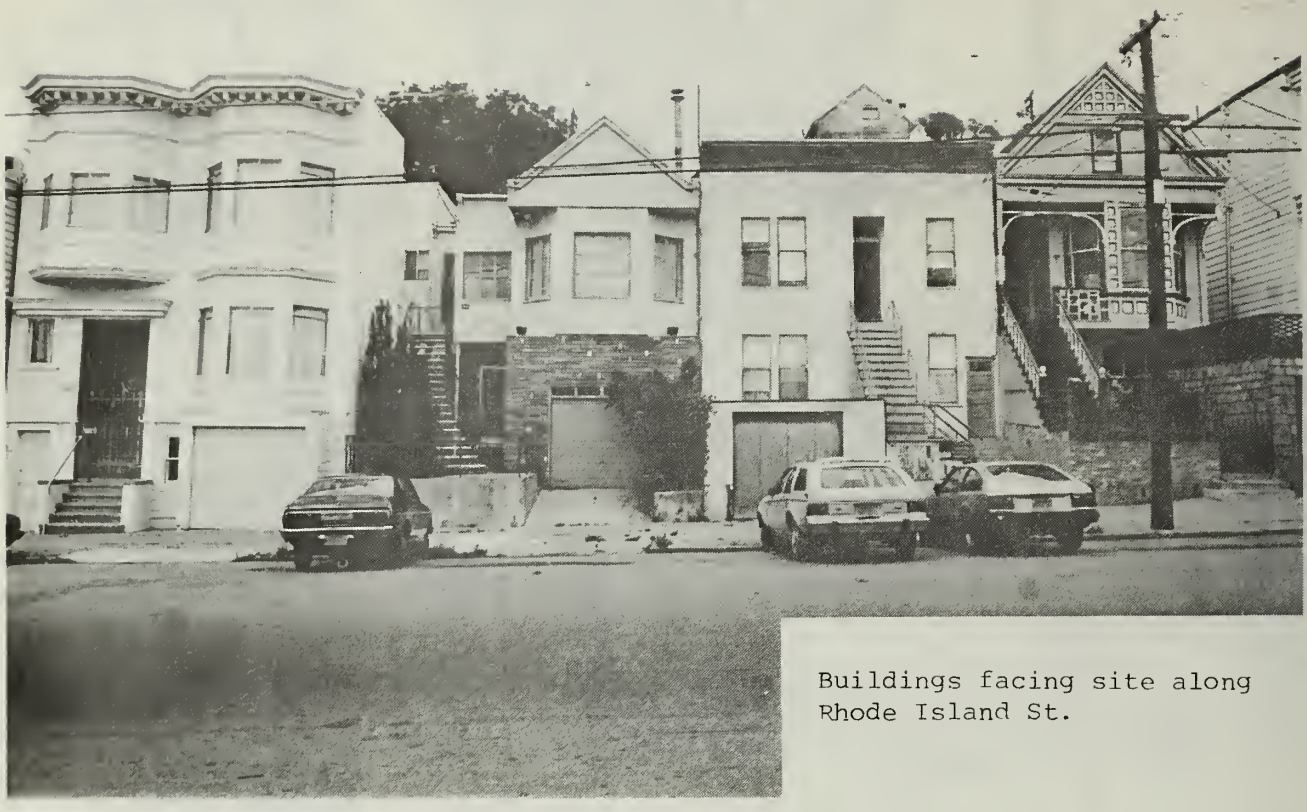
Numbers represent the number of units per lot

Not to scale

V Vacant

S Store

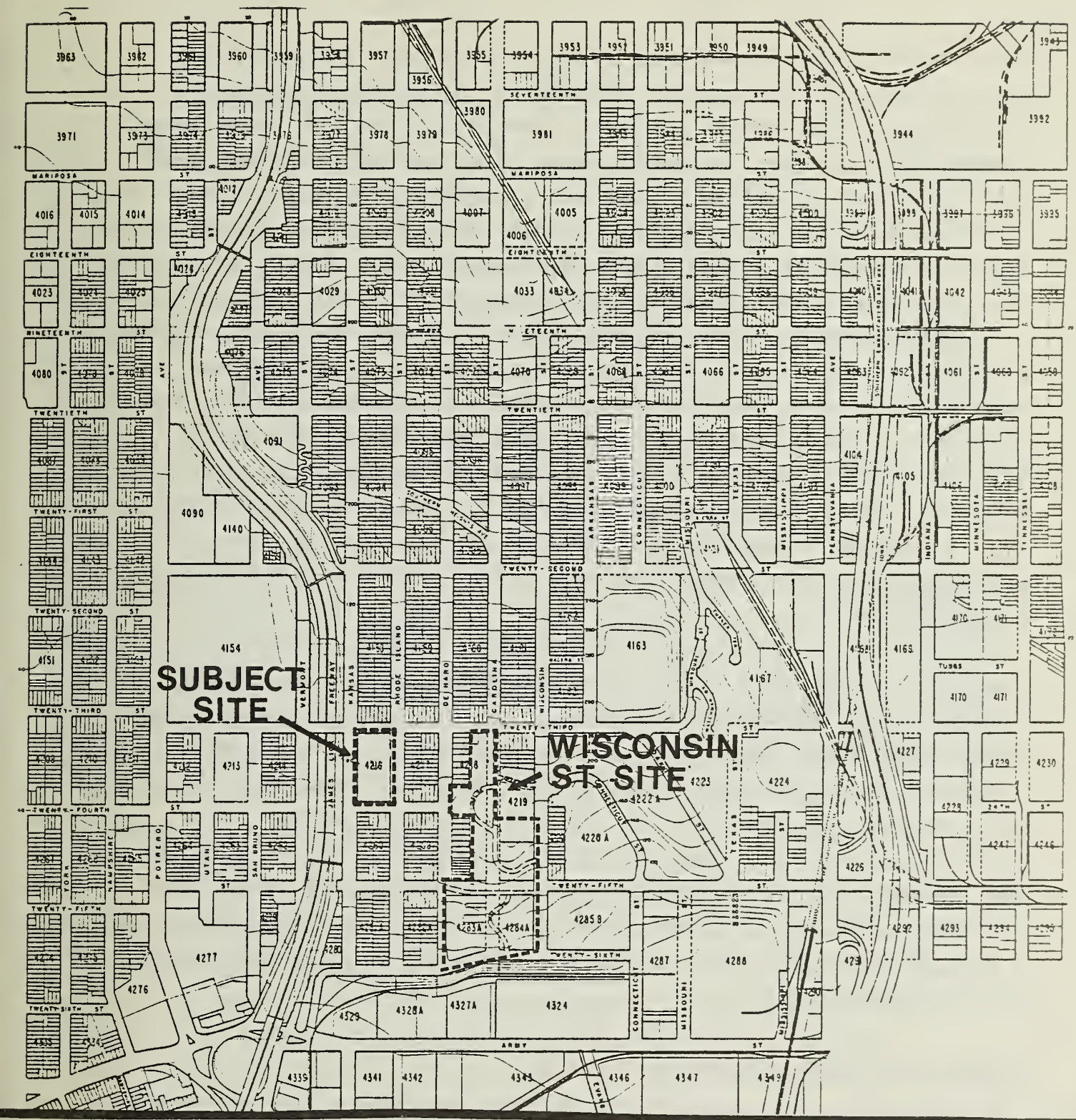
Exhibit No. 14



Buildings facing site along Rhode Island St.

Buildings facing site along 23rd St.

Exhibit No. 15



Wisconsin Street Site

N

0 600'

Exhibit No. 16

24th Streets, is a block away. The Potrero Hill Neighborhood Improvement Plan recommends development of 175 family units, "including a substantial amount of dwelling units for lower income households"[1] for the Wisconsin site. In February 1981 the Board of Supervisors initiated a proposal to rezone the property from P (Public) to RH-2; environmental review, City Planning Commission approval and Board adoption are expected to occur during 1981. There is no presently active development proposal for this site.

City Planning files indicate several other recent or proposed projects in the vicinity of the proposed project. In 1978 an apartment project, one half block from the proposed project, was completed at 2120 24th Street and 3 duplexes were completed at 205-207 Arkansas Street, 9 blocks northeast of the proposed project. Three warehouse buildings have been proposed for 1453 25th Street, 7 blocks east of the project. (Building Permit Application Number 7812869 and Office of Environmental Review Case Number EE 78.420).

The nearest RM-2 (Residential, Mixed District, Moderate Density) zoning, is 3 blocks from the site, east of Wisconsin Street. RH-3 (Residential, House, Three-Family) Districts are a block north and a block southeast of this site. A small RC-1 (Residential, Commercial Combined, Low Density) area is 3 blocks east at 23rd and Wisconsin, adjacent to the RM-2 area. A C-2 (Community Business) district extends along 24th Street, west of the Freeway and M-1 (Light Industrial) districts are found about 2400 feet east and 2 blocks south of the site. Although there is a mix of zoning and land use in the area, the site is surrounded by residential uses.

Notes: Land Use and Zoning

1. San Francisco Department of City Planning, Potrero Hill Neighborhood Improvement Plan, endorsed by the Planning Commission, 3 August 1978, Resolution 8036, page 14.

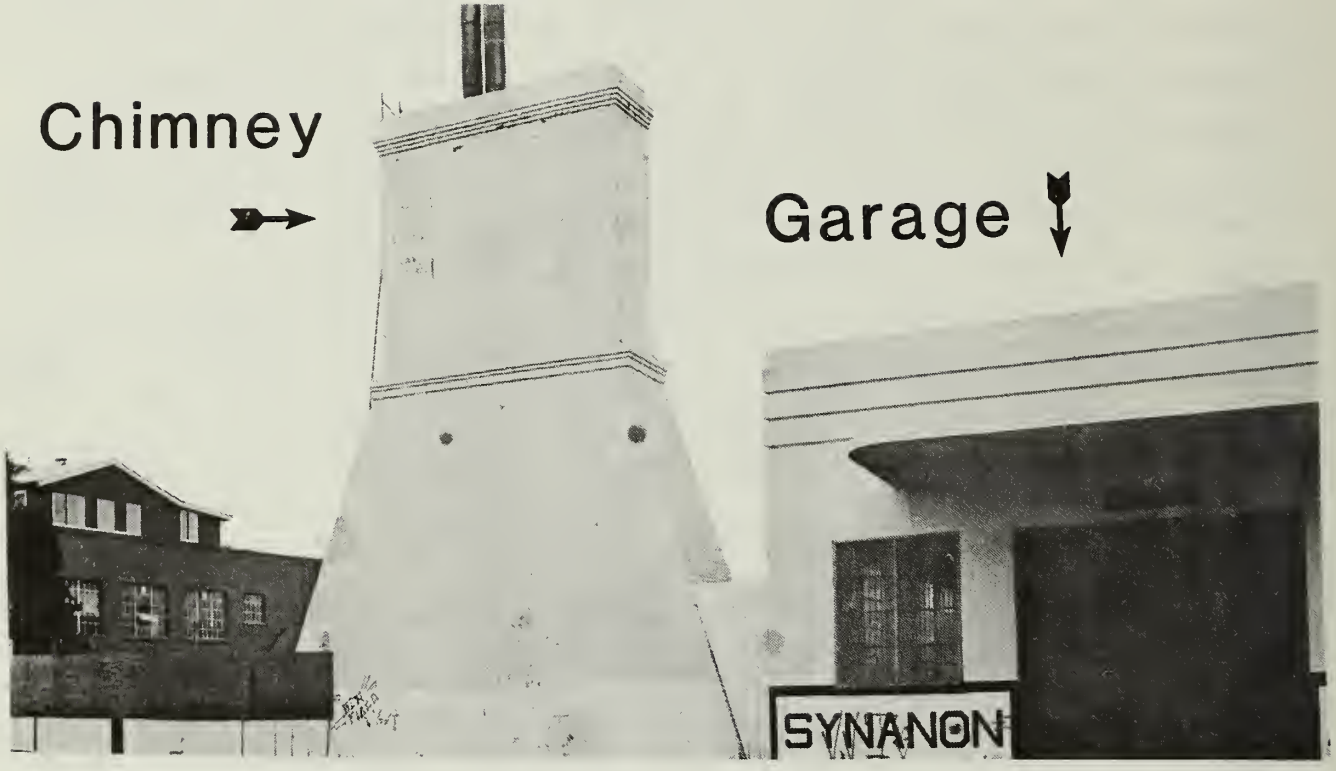
B. History of the Site

The San Francisco Pioneer Varnish Works, owned by the Hueter Bros. & Co. (Gustave and Ernest L. Hueter), dealers in paints, oils, and artists' materials, was established in 1858. Hackett (1884) states that the factory "is located on Sonoma[1] Street, between Twenty-third and Twenty-fourth Streets, and covers one city block with its buildings and accessions, erected after the latest European plans... The trade of this house is very great, extending so far as Sydney and Melbourne. At the World's Fair in 1879, at Sydney, its varnishes were awarded the highest premiums."[2] A chimney built as part of the paint manufacturing plant would be retained in the proposed project (Exhibit 17, page 26). It is listed in the San Francisco Department of City Planning's 1976 Architectural Survey, an inventory of structures of architectural significance. The chimney is rated "3" in this inventory.[3]

In 1906 the northern half of the site was owned by the Hueter Bros. and the southern half was owned by E. L. Hueter and J. J. Wentworth.[4] The warehouse at 24th and Kansas Streets, which would be retained in the proposed project, was designed by W. H. Ellison, Consulting Engineer, then of 369 Pine Street in San Francisco and was built by Barrett and Hilp in the twenties.[5]

National Lead Company (Dutch Boy, Inc.) purchased the site in 1930 and continued paint manufacture until the site was acquired by the private Synanon organization in 1971. Synanon Inc. used the site as San Francisco work headquarters and residential facility. Synanon facilities included various workshops, printshops, automotive repair shops and other work areas. Synanon sold the site to the project applicant in early 1980. There is currently no authorized activity on the site.

Prior to the present RH-2 zoning the site was zoned R-3 which permitted one dwelling unit per 800 square feet of lot. Under R-3 zoning 100 units could have been built on the site. The paint manufacturing plant was a nonconforming use with a 2 May 1980 termination date.



Chimney and Garage to be Retained

Exhibit No. 17

Notes: History of the Site

1. Street names and some street alignments changed in this area about the turn of the century. It is not certain whether this refers to the present site or a block further east.

2. Hackett, Fred, H., editor, Industries of San Francisco, Payot, Upham & Co., Publishers, San Francisco, 1884, pp. 122-3 (Available at San Francisco Public Library).

3. Jonathan Malone, Administrative Assistant, Landmarks Preservation Advisory Board, personal communication, 21 January 1981. Each structure is numerically rated according to its overall architectural significance. The ratings range from a low of "0" to a high of "5". Factors considered include architectural significance, urban design context, and overall environmental significance. The architectural survey resulted in a listing of the best 10% of San Francisco's buildings.

4. The Hicks-Judd Company, The San Francisco Block Book, 4th Edition, 1906. (Available at San Francisco Public Library.)

5. San Francisco Department of Public Works, Central Permit Bureau, Building Permit filed 23 April 1923.

C. Transportation

Street Characteristics. Major thoroughfares[1] nearest the site are Potrero Ave., 4 blocks west, and Army St., 3 blocks south. The site is adjacent to the James Lick Freeway (U.S. 101) with connections north and south at Army St., about 1000 feet south of the site. The connection from the south does not allow left turns from Army St. onto Vermont St.; thus freeway access from the south is more convenient at Mariposa St. (from the Vermont St. exit), 5 blocks north of the site. (See Exhibit 18, page 29).

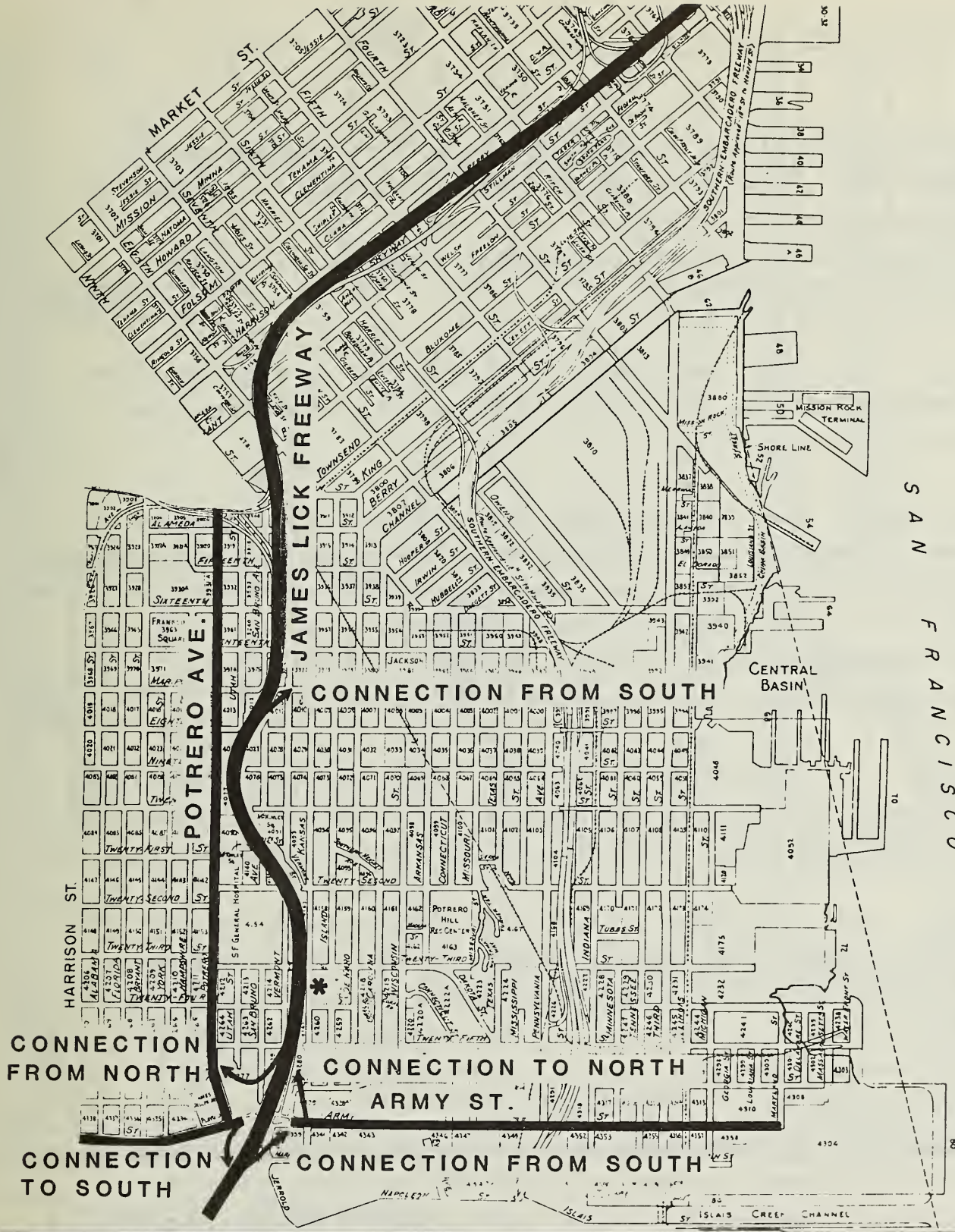
The characteristics of surrounding streets are given in Table 2.

TABLE 2: STREET CHARACTERISTICS

Street	Right of Way	Travel Lanes	Parking Lanes	Sidewalks
23rd St.	66'	2 @ 12'	2 @ 9'	Both sides, 12'
Rhode Island St.	80'	2 @ 15'	2 @ 10'	Both sides, 15'
24th St.	66'	2 @ 12'	2 @ 9'	Both sides, 12'
Kansas St.	80'	2 @ 15'	2 @ 10'	West side, 5' East side, 15'

Traffic volume on 23rd St. is about 3070 vehicles per day,[2] on Rhode Island St. about 750 vehicles per day, on 24th St. about 100 vehicles per day and on Kansas St. about 2100 vehicles per day.[3]

The 23rd and Kansas St. intersection is controlled by a 2-way stop on Kansas St. The capacity of that intersection is about 1175 vehicles per hour.[4] About 680 vehicles pass through the intersection in the evening peak hour (4:15 to 5:15 p.m.),[5] at level of service A. (See traffic counts and definitions of levels of service in Appendix B, pages 122-126.)



Street Map Showing Connections To & From James Lick Freeway

N

* Project Site

Freeway

Major Thoroughfare

0 1200'

Exhibit No. 18

The nearest signalized intersection is at 23rd and Potrero Sts., 4 blocks west, which operates at level of service C or better in the evening peak hour.[6]

There are no transit preferential lanes on any of the streets surrounding the site.

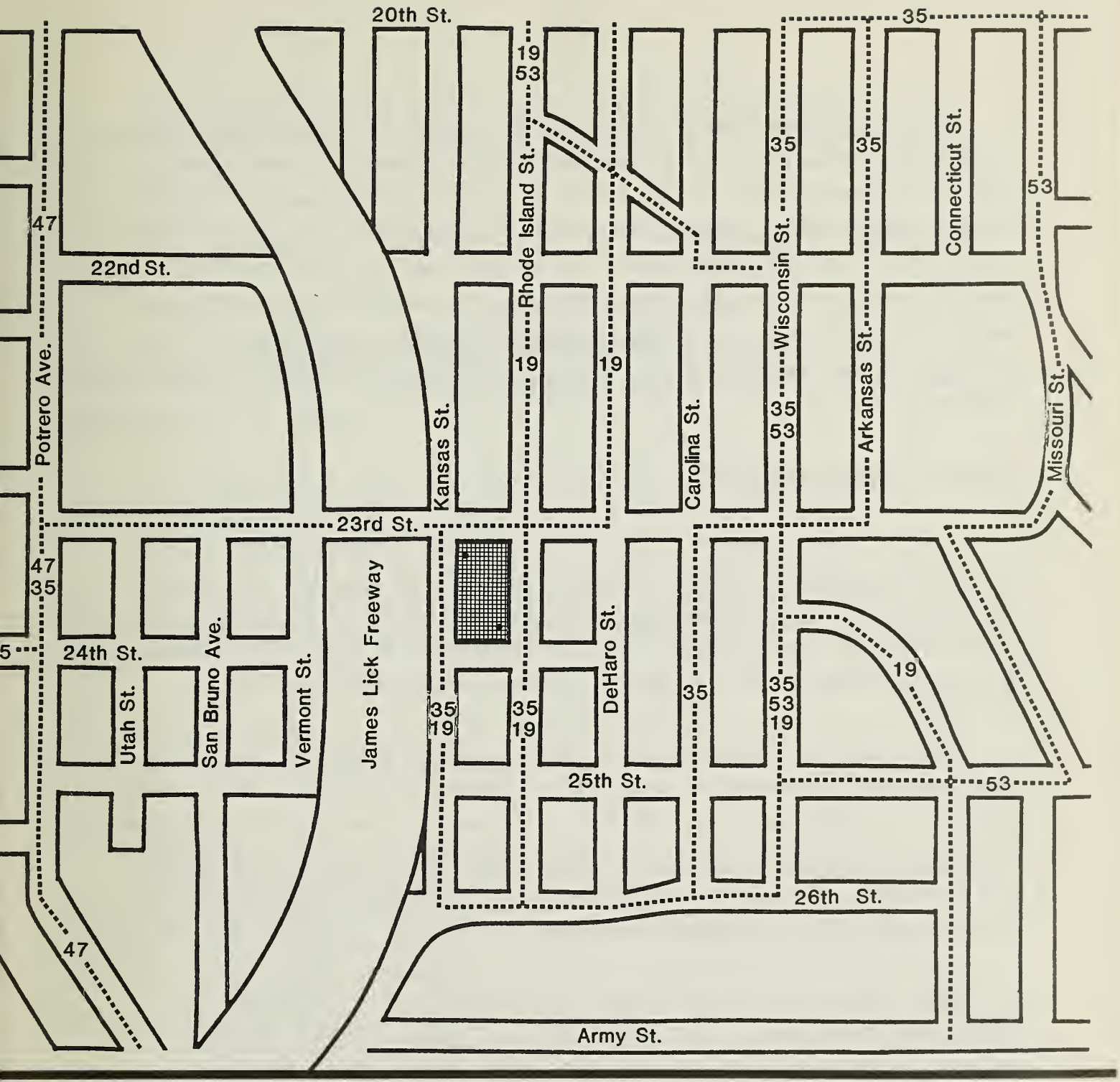
Transit. Four MUNI bus routes run adjacent to or near the site: 53-Southern Heights, 35-Eureka, 19-Polk, and 47-Van Ness (see Exhibit 19, page 31).

Pedestrians. Pedestrian volumes on the sidewalks surrounding the site are relatively low. The highest volumes occur at the corner of 23rd and Kansas during the peak (5:00 - 6:00 p.m.) hour.[7] Pedestrian movement is at a level of service A (less than 60 pedestrians per hour on 23rd and 24th Sts. and less than 75 pedestrians per hour on Kansas and Rhode Island Sts.)[8]

Bicycles. The Transportation Element of the Comprehensive Plan designates no streets surrounding the site as bicycle routes. The closest designated route is on Bryant St., 7 blocks west.

Parking. Except for the facilities at San Francisco General Hospital, a block from the site across the Freeway, there are no off-street parking lots within 1/4 mile of the site. There are no special loading zones on any of the streets surrounding the project except for a bus stop on Kansas at 23rd as shown on Exhibit 3, page 6.

On-street parking surrounding the site includes curbside parking as follows: a total of 30 spaces on the 2 sides of Kansas St., 17 spaces on the west side of Rhode Island St., 9 spaces on the south side of 23rd St., and 8 spaces on the north side of 24th St., a total of 64 spaces.



Transit Service

----19---- MUNI Bus Routes

Project Site

• Bus Stop

Not to scale

Exhibit No. 19

These parking spaces are currently used by neighbors or by commuters, primarily San Francisco General Hospital employees. For all streets surrounding the site, parking occupancy averages approximately 50%, ranging from 90% on Kansas St. to 10% on Rhode Island St.[9] Field observation of drivers using local parking spaces indicate that approximately 50% of daytime users are generated by San Francisco General Hospital (SFGH) (8:00 a.m. - 6:00 p.m.) and approximately 20% are generated by SFGH in the evening hours.[9]

Notes: Transportation

1. Major Thoroughfare: A cross-town street whose primary function is to link districts within the City and to distribute traffic from and to the freeways; a route generally of citywide significance; as identified in the Thoroughfare Plan of the Transportation Element of the San Francisco Comprehensive Plan.

2. This may be compared to a traffic count taken on 5 October 1976 at the intersection of 23rd and Vermont Streets. Increasing the 1976 traffic count by 2% per year per information from Nelson Wong, San Francisco Department of Public Works, Traffic Engineering Division, telephone conversation, 29 January 1981, traffic at that intersection would be expected to be 5700 vehicles per day.

3. EIR Consultants, Ted Kreines, and Richard K. Hopper, P.E., field observations, 4 February 1981. Traffic counts on these 4 streets were taken for the evening peak hours (4:15 to 5:15 p.m.). This evening peak hour is assumed to be 10% of the total daily traffic. This assumption is based on data from the San Francisco Department of Public Works, Traffic Engineering Division, Map, Evening Peak Hour Traffic Flow on Principal Streets and Highways, 1974-1976 and Map, Twenty-Four Hour Traffic Flow on Principal Streets and Highways, 1974-1976.

4. Calculation method from: Institute of Transportation Studies, "Fundamentals of Traffic Engineering," 8th Edition, 1973, p. 7-7.

5. EIR Consultant, Ted Kreines, field observation, 4 February 1981.

6. Scott Shoaf, San Francisco Department of Public Works, Traffic Engineering Division, telephone conversation, 3 July 1980 and reference 4 above.

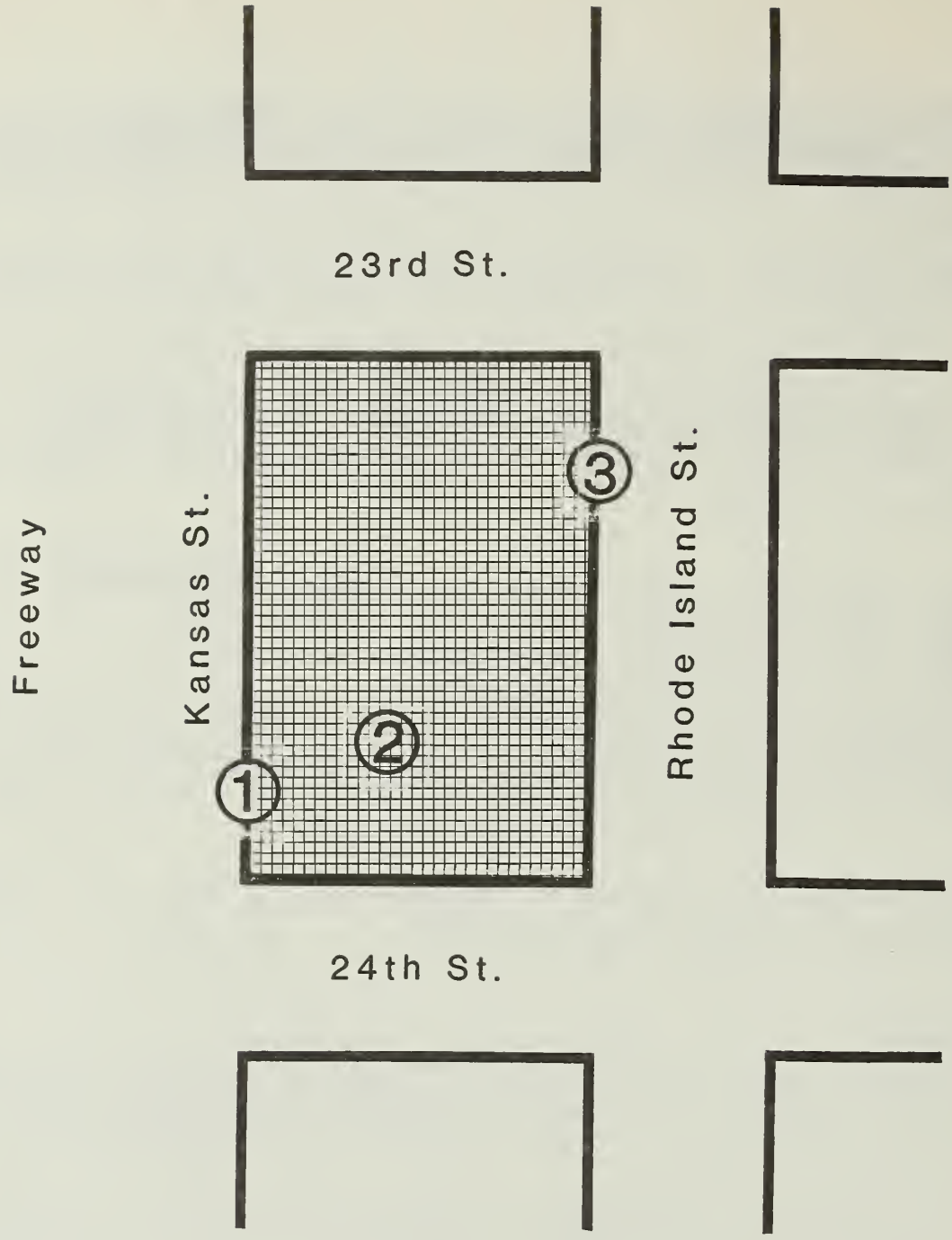
7. 1.3 pedestrians per minute: field observation by Ted Kreines, 4 February 1980.

8. "Pedestrian Planning & Design," John J. Fruin, Metropolitan Association of Urban Designers & Environmental Planners, Inc., New York, 1971, p. 78.

9. EIR Consultants Richard K. Hopper, P.E., 7 July and 15 July 1980 and Ted Kreines, 4 February 1981.

D. Noise

Acoustical measurements were taken at three locations (shown on site map, Exhibit 20, page 34) to quantify existing noise conditions at the site area:[1] on Kansas Street approximately 100 feet from the near lane of traffic on Route 101; in the courtyard in the center of the existing building complex on the site; and on the west side of Rhode Island Street between 23rd and 24th Streets. The three positions were chosen as representative of the noise environment of the block: noise levels at point 1 represent exposure of project units which would front toward the Freeway; point 2 represents levels within the proposed courtyard; and point 3 represents noise exposure of the nearby residential area and units which would front on Rhode Island. A summary of the noise measurements is given in Table 3 (page 35). The noise



Noise Measurement Positions

N

Project Site

Source: Charles M. Salter Associates, Inc.

Exhibit No. 20

TABLE 3: AMBIENT NOISE MEASUREMENTS

Location of Measurement	Day and Time	L_1	L_{10}	L_{50}	L_{90}	L_{99}	L_{eq}	Comments
Site 1. On Kansas Street, 60 feet from building corner at 24th Street, on 3rd Floor of building, 1 meter from facade, 100 feet to nearest lane of freeway.	18 July 1980 5:10-5:20 pm	79	77	76	74	74	76	8-lane freeway depressed 20 feet below grade.
Site 2. In courtyard 120 feet from building edge at 24th Street and 120 feet from building edge at Kansas Street, 2 meters from ground.	18 July 1980 5:30 pm	--	57	57	55	--	56	Steady noise from freeway through gate/entry on Kansas Street
Site 3. Near curb toward Rhode Island Street 60 feet from 24th Street building edge, 15 feet from building facade.	18 July 1980 5:50 pm	85	69	60	56	--	70	5 minute sample with bus.
		--	64	60	58	--	61	5 minute sample without bus.

The L_{10}, L_{50} and L_{90} are statistical descriptors indicating the noise levels which were exceeded 10, 50 and 90 percent of the time period, respectively. The L_{eq} is the equivalent sound level and is an alternative method for describing the average noise level.

-- No measure taken.

Source: Charles M. Salter Associates, Inc.

environment is dominated by noise from eight lanes of freeway traffic, and by bus traffic noise on Rhode Island, 23rd and 24th Streets. The acoustical consultant characterizes the area as "generally noisy."[2]

The Environmental Protection Element of the Master Plan predicts a background noise level of 65 L_{dn}[3] for this site. Actual measurements showed the site to be noisier on Kansas Street, estimated at 75 L_{dn}[4] on the basis of short-term measurements, because this side of the site is next to the Freeway. In the courtyard the L_{dn} drops to about 55-60 dBA; on the Rhode Island side it is 60-65 dBA, with peak noise at 85 dBA when buses pass by.[5]

Notes: Noise

1. Measurements made by Charles M. Salter Associates, Inc., under contract to EIR consultant Kreines and Kreines.

2. Acoustical Consulting Report for 2222 Limited EIR, Charles M. Salter Associates, Inc., 28 August 1980. Available for public review at the City Planning Office of Environmental Review, 45 Hyde Street, Room 319.

3. Decibel: A logarithmic unit of sound energy intensity. Sound waves, traveling outward from a source, exert a force known as sound pressure level (commonly called "sound level"), measured in decibels.

dBA: Decibel corrected for the variation in frequency response of the typical human ear at commonly-encountered noise levels.

L_{dn}: An averaged sound level measurement, based on human reaction to cumulative noise exposure over a 24-hour period, which takes into account the greater annoyance of nighttime noises. Noise

between 10 p.m. and 7 a.m. is weighted 10 dBA higher than daytime noise.

4. For the purposes of this report L_{dn} has been considered to be equivalent to CNEL. CNEL = Community Noise Equivalent Level; similar to L_{dn} except that sound level measurements taken between 7 p.m. and 10 p.m. are weighted 5 dBA higher than daytime sounds in additional to the 10 dBA 10 p.m. to 7 a.m. weighting.

5. L_1: 85 dBA, the noise level exceeded during the 1% noisiest time.

E. Topography and Geology

The site is bounded by 4 streets with varying slopes: 24th Street has a slope of 13%; 23rd Street has a slope of 7%; Kansas Street has a slope of 4%; and Rhode Island Street has a slope of 1%.

The site has a cross-slope of 5.2%, measured from the northwest to southeast corners, representing a grade change of 24 feet within a distance of 452 feet.

The site slopes down to the west at a ratio of approximately 6 horizontal to 1 vertical (6:1). Borings drilled by the soils engineer[1] indicate that the site is generally underlain by 2 to 10 feet of fill. Fifteen feet of sand fill were found on the east side of the site. Under the fill is clay, sand, and gravel; below these are shale and serpentine rock. Groundwater level is below the level of the borings.

The fill would not provide adequate foundation support, and so would have to be removed down to the natural soil level, to provide a suitable base for project building foundations.

The San Andreas, Hayward, and Calaveras earthquake faults are 7 miles southwest and 12 and 20 miles northeast of the site,

respectively.[2] The soils on the site are not subject to liquefaction[3] or settlement in case of an earthquake.

Notes: Topography and Geology

1. This section is based on the 17 November 1980 report by Warren Wong (California license No. CE 25777), Geo/Resource Consultants for project sponsor: "Geotechnical Investigation, Proposed Potrero Hill Housing Development, 24th and Kansas Streets, San Francisco, California."

2. A map showing the location of these faults with respect to San Francisco can be found on page 48 of Final EIR EE 79.57, Daon Building, San Francisco City Planning Commission, 12 June 1980, and is hereby incorporated by reference. That EIR is available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde Street, Room 319.

3. Liquefaction: Earthquake-induced transformation of a stable granular material, such as sand, into a fluidlike state, similar to quicksand.

F. Plants

The site is urbanized. Three, 8-inch diameter eucalyptus trees, are growing on the site along the Rhode Island Street wood fence. There are 7 street trees in sidewalk planters along 24th Street, and one in a sidewalk planter on 23rd Street.

IV. ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT

A. Land Use and Zoning

Rezoning would be required in order to permit the proposed 132 units on this site. Table 4 shows the density which could be permitted by various zoning districts on this 80,000-square-foot site. Present RH-2 zoning would permit 53 units, and RM-2 (proposed) or RC-2 zoning would permit 133 units. Thus, the project would include 80 more dwelling units than presently allowable. RM districts allow more variety of building sizes and designs than RH districts. According to Planning Code Section 206.2, RM districts "...are intended to recognize, protect, conserve and enhance areas characterized by a mixture of houses and apartment buidings, covering a range of densities and building forms...and contain supporting non-residential uses." New non-residential uses in RM districts are permitted with conditional use authorization. RC districts are characterized by structures combining residential and first floor, neighborhood-serving commercial uses, with less of a rear yard requirement than comparable RM districts. The proposed project would have residential units over commercial space. As the housing over a grocery on the north side of Kansas and 23rd is the only other such arrangement in the immediate neighborhood, RC zoning would not be as likely to be recommended or approved as would RM zoning. Project sponsor proposes to apply for RM-2 zoning with a conditional use authorization for the commercial space. Some of the units would have private terraces.

RM-2 districts require 80 square feet per unit of private usable open space, or 107 square feet of common usable open space per unit. The project would provide 29,160 square feet of common usable open space, or about 175 square feet per unit.

New construction would comply with the 40-foot height limit. The sponsor originally proposed to renovate the penthouses on top of the building at 24rd and Kansas Streets. No construction permit appears to have been issued for these penthouses. As they were constructed without a permit, they must be demolished rather than renovated. The main portion of the building, about 60 feet tall on the Kansas Street frontage, was constructed pursuant to a 1923 building permit application and, therefore, present height limits do not apply.

TABLE 4. ALLOWABLE HOUSING DENSITY BY ZONING DISTRICT

District	Required sq. ft. per unit	Maximum number of units
RH-2, Residential, House District, Two Family (present zoning)	1500[1]	53
RH-3, Residential, House District, Three Family	1000[1]	80
RM-1, Residential Mixed District, Low Density	800	100
RC-1, Residential-Commercial Combined District, Low Density	800	100
RM-2, Residential Mixed District, Moderate Density (proposed zoning)	600	133
RC-2, Residential-Commercial Combined District, Moderate Density	600	133
RM-3, Residential Mixed District, High Density	400	200
RC-3, Residential-Commercial Combined District, Medium Density	400	200

[1] Development at this density requires conditional use permit.

B. Historic Structure

The chimney, described on page 25, would be retained as a symbol of the long history (over 100 years) of industrial use of the site.

C. San Francisco Comprehensive Plan and Other City Policies

This EIR section compares the proposed project with the Residence and Urban Design elements of the San Francisco Master Plan. Other Master Plan elements, such as Transportation, are discussed in the appropriate sections of this EIR.

Residence Element. The project would comply with Objective 2, Policy 1 of the Residence Element, "In existing residential neighborhoods, ensure that new housing relates well to the character and scale of surrounding buidings and does not reduce neighborhood livability", to the extent that the design succeeds in its intent to relate to development across the street. The scale of the proposed project would be larger than that of the surrounding residential development. The most massive element in the proposal is the existing building at Kansas and 24th Streets which is to be renovated. As this building has been on the site for nearly 60 years, it is part of the existing neighborhood scale.

The project would comply with Objective 2, Policy 2, "Encourage the conversion of underused non-residential land to residential use..." by converting an unused industrial site in a non-industrial area to residential use.

The project would comply with Objective 2, Policy 4, "Encourage construction of a variety of units suited to the needs of households of all sizes", by providing a mix of sizes of units from studios to 3-bedroom units.

The project would comply with Objective 3, Policy 2, "Allow small-scale non-residential activities in residential areas where they contribute to neighborhood livability", by providing pedestrian and neighborhood-oriented retail stores in an area where, except for one grocery, the nearest shopping area is on the other (west) side of the Freeway.

Objective 4, Policy 1, states, "Preserve and expand the supply of low and moderate income housing." The project would not comply with this policy unless a subsidy is available.

Urban Design Element. The project would comply with Objective 2, Policy 4 of the Urban Design Element, "Preserve notable landmarks and areas of historic architectural aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development", to the extent feasible, by preserving the incinerator and those buildings and walls that are structurally safe and appropriate for reuse (listed in the project description, page 4).

The project would comply with Objective 3, Policy 5, "Relate the height of buildings to important attributes of the city pattern and to the height and character of existing development", and Policy 6, "Relate the bulk of buildings to the prevailing scale of development to avoid an overwhelming or dominating appearance in new construction", to the extent that it would preserve the present height and bulk pattern and hollowed square building configuration of the present site development, although buildings on the site are taller and more massive than the surrounding residential development. (They are not as large-scale as the San Francisco General Hospital buildings about a block away, but those are probably less relevant to the character of the project area, because they are on the other side of the Freeway.)

The project would comply with Objective 4, Policy 2, "Provide buffering for residential properties when heavy traffic cannot be avoided", by design measures such as double pane glass to protect dwellings on the west side of the project from freeway impacts, and by creating a wall to buffer noise on the Kansas Street side.

Potrero Hill Neighborhood Plan. The proposed project would comply with policies in the Neighborhood Plan, "Housing Strategy C - Increase opportunities for Potrero Hill renters to become home owners." and "Economic Development Strategy B - Promote reuse and rehabilitation of the underutilized commercial and industrial facilities as well as the retention and expansion of existing activities.", by providing housing in the Potrero area on an underused industrial site. The Neighborhood Plan calls for "theme trees" along 23rd Street and street trees are also required by Section 143 of the Planning Code. No landscaping plan has been developed yet, so it is not known whether the project would comply with the "theme tree" policy.

D. Socioeconomics

Employment. Based on a March 1981 estimated construction cost of $10,200,000, the project would generate approximately 60% of that, or $6,120,000, for gross labor costs.[1]

The completed project would create full-time employment for approximately 22 persons. Nineteen would be employed in the commercial space, based on an estimate of one person per 450 gross square feet of commercial space.[1]

The condominiums would employ three persons, an on-site manager, janitor and mechanical maintenance person. Other employment would be generated for additional project management, landscape, and elevator maintenance; and security personnel. These could be part-time positions.

Revenues. Municipal tax revenues to the City and County of San Francisco generated by the proposed project have been estimated in 1980 dollars at 1980-81 tax rates (see Table 5, page 44). Total annual revenues to the City would be about $200,000 (1980 dollars) at those rates.

The projected revenue does not include the 1-1/2% tax on selling the condominium units, a tax paid once at the time of sale of each unit. Total estimated revenue to the City from this source would be about $240,000 (1980 dollars).

Economic Effect of Victoria Mews on Potrero Hill. The Potrero Hill Advisory Committee has requested[2] a study of the Victoria Mews project (bounded by 19th, 20th, Carolina and Wisconsin Sts.), comparing housing prices in that particular residential neighborhood before and after completion of Victoria Mews, in order to find out if that development caused prices on Potrero Hill to rise more rapidly than they would have otherwise. Statistical analyses of this type are difficult because of variation in size and design from one project to another which causes prices to vary and the inherent inability to obtain local

TABLE 5: ESTIMATED PROJECT-GENERATED MUNICIPAL TAX REVENUES IN 1980 DOLLARS, CALCULATED AT 1980-81 TAX RATES[1]

Tax	Amount
San Francisco Property Tax	$147,000
San Francisco Unified School District	13,000
San Francisco Community College District	1,000
BART	900
BAAQMD[2]	400
Total Non-Bond Property Tax	$162,300
Bond Retirement	39,000
Payroll	1,800
Total Annual Tax Revenue	$203,100

[1] Calculated on a basis of average unit price of $123,000, $16,200,000 = total sales price = market value; assessed value = 25% market value; $4/$100 assessed valuation non-bond tax rate; $0.97/$100 assessed valuation for bond retirement; distribution of taxes as in 1980; payroll tax calculated on the assumption that 1/2 or 11 on-site jobs would qualify for payroll tax and that average gross income would be $15,000

[2] BAAQMD = Bay Air Air Quality Management District.

information about sales uninfluenced by the presence of that project; it is thus impossible to identify what the neighborhood prices would have been without Victoria Mews.

The data in Table 6, page 45, on prices in Victoria Mews, the Victoria Mews area, and the proposed project area are meant to be suggestive only, as inferences from such a small sample are statistically unreliable. The data suggest that housing prices on Potrero Hill are rising at a faster rate than in San Francisco as a whole and that housing prices at Victoria Mews are rising faster than on the rest of Potrero Hill.

TABLE 6: COMPARATIVE SALE AND RESALE PRICES OF POTRERO HILL HOUSING

Location	Earliest Sale Price in Dollars and Year Sold	Latest Sale Price in Dollars and Year Sold	Overall Percentage Increase	Annual Percentage Increase
Project Area				
2110 - 23rd Street (2-family structure)	$54,000 (1973)	$103,000 (1980)	91%	13%
25th Street between Rhode Island and Kansas Streets (Single-family house)	$25,000 (1976)	$ 75,000 (1980)	200%	50%
1254 DeHaro Street (2-family structure)	$40,000 (1977)	$138,000 (1979)	245%	123%
Victoria Mews				
2 bedroom unit	$120,000 (1978)	$188,000 (1980)	57%	29%
2 bedroom unit with deck	$154,000 (1978)	$300,000 (1980)	95%	46%
Victoria Mews Area				
20th and Wisconsin Streets (Single-family house)	$ 65,000 (1954)	$280,000 (1980)	331%	13%
18th Street between De Haro and Rhode Island Streets (Single-family house)	$ 58,000 (1975)	$138,000 (1980)	140%	28%
20th and Carolina Streets (6-unit apartment building)	$160,000 (1976)	$495,000 (1980)	209%	52%

Source: Edward E. Pendergrass, Peterson Associates Realtor, 1447 20th Street, San Francisco, personal communication, 5 September 1980. Formerly a real estate salesperson for Victoria Mews and currently a real estate salesperson for the Potrero Hill area.

Notes: Socioeconomics

1. San Francisco Department of City Planning, FEIR, Ocean Beach Park Estates, EE 78.178, 30 August 1979, p. 126.

2. Potrero Hill Advisory Committee, special meeting, 8 July 1980.

E. Transportation

The project would generate a total of about 740 one-way vehicle trips per day, about 340 condominium-related, 370 for the commercial space, and 30 commercial/residential delivery and service trips. (See Table 7, page 47.)

1981 counts made for this EIR (discussed in Setting, page 28) agree with counts at 23rd and Vermont made by the Department of Public Works in 1976, within probable measurement error, and show that the peak hour for traffic on 23rd St. is 4:15 - 5:15 p.m. As 23rd is the busiest street in the area, project impacts on traffic flow on 23rd could potentially have the greatest effect. The peak in project generated traffic, 88 vehicles per hour,[1] would occur later than the total traffic peak, or from 5:00 to 6:00 p.m.

During the 4:15 to 5:15 peak traffic hour the project would be expected to generate 59 trips. It is estimated[3] that 60% of the project's 59 peak hour trips, or about 20 trips, would be added, for a traffic increase of about 4% over the present peak hour traffic volume of about 520 vehicles on 23rd Street.[2] This increase would not change the present traffic Level of Service A (free flow).

On Kansas St. about 10 vehicles would be added to the peak hour 220, an increase of about 5% which would not affect the flow of traffic. Addition of about 5 trips to the peak hour volume of about 70 on Rhode Island and 4 trips to the peak volume of 10 trips on 24th St. would increase traffic by about 7% and 40%, respectively, and would not affect the present flow of traffic.

Intersection traffic counts and predicted volumes with the project are shown in Appendix B, pages 123-127. Intersection analysis indicates that all four project intersections would remain at Level of Service A. The Level of Service on the westbound 23rd St. approach to the Potrero Ave. intersection, 4 blocks east of the site, is B at the p.m. peak hour. This would not change with the project. As the free flow of vehicular traffic around the project would not be affected, no impacts on freedom of bus movements would be expected.

TABLE 7: AVERAGE WEEKDAY VEHICULAR TRIP GENERATION

Type of Trip	Purpose of Trip	Total Trips
Residential		
Auto	Work	170
Auto	Shopping	70
Auto	Other	100
Total Residential		340[1]
Commercial		
8,500 square feet		370[2]
Commercial and Residential Delivery Service		30
Total All Trips		740

Note: All numbers rounded off.

[1] 2.6 vehicle trips per unit.

[2] 44 vehicle trips per 1,000 square feet.

Source: Richard K. Hopper, P.E., Consulting Engineer

The project would generate 40 pedestrian trips during the project peak hour. If all these pedestrians were to be at the most crowded section of the sidewalk, the pedestrian count would rise from 1.3 to 2.0 per minute, with no change from the present Pedestrian Level of Service A. Pedestrians were counted as they passed a fixed observer on the sidewalk.

Field investigation[4] indicates that buses in the project vicinity could accommodate the approximately 50 transit trips (15% of daily total) the project would generate during the peak hour. Assuming that all passengers would be evenly distributed by bus route, approximately 5 passengers (50 divided by 5 bus stops for each of the 2 routes, 19-Polk and 35-Eureka) would board or depart a bus at any single stop during the peak hour. Buses on both routes run every 10-12 minutes at peak hours. The average increase in passenger load per bus would be about 1 per stop, or a maximum of 5 for the project. Passengers going downtown may be transferring to other lines which may not have available capacity.

The existing vehicle access points on Kansas and 24th Sts. would be maintained and additional access would be added from Rhode Island, to 6 parking spaces, and access from 23rd St., to 16 parking spaces. The 24th St. entrance would lead to 77 parking spaces and the entrance on Kansas St. would lead to 62 spaces. Access to the largest parking area is from 24th St. where there is no MUNI line. During rush hour, cars entering and exiting on Kansas St. could interact with buses. The smaller parking areas accessed from 23rd and Rhode Island Sts. would have fewer such interactions.

The 132 dwelling units would require 132 off-street parking spaces and, as the Planning Code requires 1 space per 500 square feet of commercial space, 17 spaces would be required for 8,500 square feet of commercial space. Thus, the Planning Code would require 149 parking spaces. The project would provide 161 parking spaces, 12 more than required.

For planning purposes, the San Francisco Department of City Planning uses 0.78 vehicles per household.[5] At this rate, the 132 residential units would generate a need for 103 off-street parking spaces. The Manager of Victoria Mews estimates parking space use at that project at 1.3 spaces per unit.[6] If this rate were to apply for the new project, 132 units would generate a need for 173 spaces.

A maximum of 40 vehicles would need parking spaces during the peak hour of patronage of the commercial space. As the average duration of neighborhood commercial parking is 1/2 hour, a demand of approximately 20 parking spaces would be created by the commercial space during the peak patronage hour. Ten spaces would be needed by employees driving to work in the commercial space. The other employees would walk or use public transit.

The total demand from residents, shoppers and employees would be between 133 and 203, or from 28 less to 42 more than would be provided in the proposed project. A maximum use of one space per unit is considered reasonable by the Department of City Planning.[7] This would result in a total demand for 162 spaces, or 1 more than provided.

The parking demand from neighboring uses is 32 at peak hour, which would leave 32 of the 64 parking spaces on streets bounding the project for extra project-related parking. If the worst case demand for 42-off-site spaces should occur, this would be 22 less than spaces available on streets bounding the project. As there is existing neighborhood demand for 32 spaces, 10 project-related or neighborhood cars would have to park further from the project. Space would be expected to be available within one block of the site.

The proposed development would replace 4 curb cuts with 5 curb cuts. Some of the new curb cuts would be narrower than the old curb cuts so that one additional street parking space could be provided. No off-street loading space for deliveries would be provided; none is required by the Planning Code.[8]

Notes: Transportation

1. This differs from the assumption of 10% of total traffic during the peak hour because it is derived for a specified project rather than for the total traffic on the street.

2. Based on 4 February 1981 counts previously cited.

3. Assumption by traffic consultant, Richard K. Hopper, P.E.

4. By traffic consultant, Richard K. Hopper, on 3, 7 and 15 July 1980 and by EIR consultant, Ted Kreines, AICP, on 4 February 1981.

5. Ed Green, San Francisco Planning Department, telephone conversation, 3 July 1980 and Chi-Hsin Shao, San Francisco Planning Department, telephone conversation, 2 September 1980, and Department of City Planning memorandum from Dave Feltham through Alan Lubliner, Project Manager, Center City Circulation Program, to Dean Macris, Director of Planning, 10 March 1981, "The latest available census data (1970) shows that auto availability per household in San Francisco is only 0.777. . . Autos available rates are generally higher than auto ownership rates."

6. Bob Turner, telephone conversation, 23 March 1981.

7. Alan Lubliner, telephone conversation, 23 March 1981.

8. See Sections 152 and 153.

F. Noise Impacts

1. Construction Noise

During demolition and construction of the proposed project, construction equipment noise would be expected to temporarily increase noise levels in the project vicinity. Project sponsors (conversation with developer, 21 July 1980) have estimated demolition time at 2 to 3 months, and construction and rehabilitation at approximately 18 months. The demolition methodology has not been determined. Whether wrecking ball or cranes are used during demolition, the peak sound level generated by these construction activities would occasionally reach 90-95 dBA outside residences on 23rd St. between Kansas and Rhode Island Sts., on Rhode Island St. between 23rd and 24th Sts., and on 24th St. between Kansas and Rhode Island Sts. Typically, noise levels during this phase would range from 60-85 dBA. This sound level would be about the same as existing traffic noise levels. The project haul truck route is not known, but it would probably be along Kansas Street south to 26th Street to Army Street and then to Highway 101 south.[1] Construction would be subject to the San Francisco Noise Ordinance.[2] Section 2907 Construction Equipment states,

"It shall be unlawful for any person. . . to operate any powered construction equipment. . . if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment. . ."

No pile driving is anticipated during construction; therefore, construction noise levels would not exceed demolition noise levels.

2. Traffic Noise

Project-induced traffic would increase surface traffic on 24th St. between Rhode Island and Kansas Sts. by approximately 40%. This would add approximately 3 dBA in traffic noise due to vehicular traffic on 24th St. However, the vehicular traffic noise from the Freeway would exceed the traffic increase due to project-induced traffic on 24th St. between Kansas and Rhode Island Sts. A 3 dBA noise change is usually perceptible; in this case Freeway noise would overshadow the change.

3. Land Use Noise Policy

The Environmental Protection Element of the City's Master Plan[3] states regarding residential development in an area with an L_{dn} of 65 or more:

"New construction or development should generally be discouraged. If new construction or development does proceed a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design."

State Noise Insulation Standards for multi-family housing require that "an acoustical report be prepared showing that the interior noise level due to exterior sources will be less than CNEL 45."[4]

The noise level in the courtyard would be expected to be lower than the present 55 to 60 dBA because Freeway noise comes through the driveway gate and this gap would be eliminated.

Notes: Noise Impacts

1. Assuming that debris would be disposed of south of the site, probably south of the county line.

2. City and County of San Francisco Noise and Abatement Control Ordinance No. 274-72, 4 December 1972.

3. The Plan for Transportation Noise Control, adopted by the San Francisco Planning Commission 19 September 1974 by Resolution 7244. The project site is mapped in this report as being in an area with a background noise level of over 65 dBA.

4. Charles M. Salter, 2222 Limited EIR Acoustical Report, 28 August 1980.

G. Air Quality Impacts

1. Toxic Substances From Past Site Uses

A study of toxic substances on the site shows that any toxicity problems on site would be expected to be dominated by the long history of paint manufacture. Paint manufacture generally involves 2 categories of toxic materials: volatile, organic suspension and drying agents, which evaporate rapidly; and pigments, many of them water-insoluble compounds of metals such as cadmium. Until the 1970's, mercury compounds were widely used as mold inhibitors in paint. (See further discussion of paint chemistry, page 60.)

Many volatile organic substances have noticeable odors, responsible for the characteristic odors of paint. Such odors were not generally conspicuous on the site at the time of the first site visits in May and June, 1980. Later, after paint was spilled and sprayed by vandals, paint odors became more prominent, but were presumably not associated with past spills on the site.

A variety of organic materials may be present in the air over the site as a result of evaporation of non-odorous or slowly evaporating materials in unsealed containers on the site. (See Appendix C, pages 129-136, for a list of substances found on site.) Project sponsor has removed all toxic materials from the site and disposed of them in accordance with Title 22, Division 4, of the California Administrative Code, Environmental Health. Any remaining material in the air due to these stored materials should have dissipated in a few days after their removal and would be expected to drop below detectable air concentrations by the time construction begins. (The detectable level for some organics is now in the parts per trillion range.)

One soil sample taken from the area of the site with intermittently detectable organic odors was analyzed for the presence of polychlorinated biphenyls (PCBs) which are sometimes used in paints. None were found.

Leaking electrical capacitors were observed on the site by inspectors from the California Department of Health Services. The leaking material was identified as Aroclor 1254, a commercial PCB product.[1]

2. Toxic Substances From Demolition

It is probable that some toxic material is contained in dust and deposits on interior surfaces of some of the buildings to be demolished.

Material on the walls of one of the buildings south of the incinerator contains 60% asbestos.[2] This friable[3] asbestos material would present an inhalation hazard to demolition workers and persons in the neighborhood at the time of demolition. Asbestos inhalation is associated with lung and other cancers.

There is friable material, which looks as if it contains asbestos, on the ceiling and walls of parts of the building to be retained at Kansas and 24th Streets.

The 240 volt transformer in the building south of the incinerator is a dry transformer and so contains no PCBs. Other transformers on the site would need to be checked before demolition for possible PCB content, to avoid dispersal during demolition.

3. Cumulative Airborne Lead Exposure

Regulation 11 of the Bay Area Air Quality Management District (BAAQMD) provides for a ground level lead emission maximum of 0.001 mg/m^3. The Federal lead standard is 0.0015 mg/m^3 (24 hour average).[4] There is evidence that lead accumulates in lung tissue when ambient concentrations are greater than 0.0013 mg/m_3.

Downtown San Francisco and San Jose have the highest lead levels in the Bay Area (see Table 8).[5] In the period 1974-1978, the San Francisco monthly average exceeded the federal 0.0015 mg/m^3 standard for 21 months. The Potrero measuring station at 900 23rd Street, closer to the project site, exceeded this standard for 2 months in the same 4-year period.[5]

TABLE 8. SAN FRANCISCO QUARTERLY AIR LEAD CONCENTRATIONS IN MILLIGRAMS PER CUBIC METER, MG/M^3

	939 Ellis Street Monitoring Station				900 23rd Street, Potrero Monitoring Station			
Year	JFM*	AMJ	JAS	OND	JFM	AMJ	JAS	OND
1976**	0.00180	0.00185	0.00175	0.00280	0.00082	0.00084	0.00082	0.00195
1977**	0.00183	0.00100	0.00108	0.00139	0.00108	0.00066	0.00068	0.00103
1978**	0.00097	0.00095	0.00199	0.00108	0.00086	0.00051	0.00083	0.00089
1979***	0.00090	0.00054	0.00059	0.00095	0.00079	0.00050	0.00033	0.00046

* JFM = January, February, March, etc.

** Data from Information Bulletin 4-4-79, BAAQMD, 1979.

*** Data from CA Air Quality Data-Summary of 1979 Gaseous and Particulate Pollutants; Teresa Lee, Public Information, BAAQMD, phone conversation 12 August 1980.

Because of the proximity of the site to the Freeway, it is possible that lead in air due to exhaust from cars using leaded gasoline and lead in the air from lead pigments used in paint could cumulatively exceed this standard even if the lead from either source alone were at a relatively safe level. The prevailing winds from the northeast tend to bring Freeway-associated air pollutants over the site. In order to ascertain whether a lead problem exists at the site, on 1 July 1980 air was sampled at 3 locations on the site: the Freeway side, the courtyard, and the side away from the Freeway. Analytic results indicate that lead concentration in all 3 samples was greater than or equal to 0.0012 mg/m^3.[6] The probable error of these measurements was of the order of $\pm$ 25%, so it can be said that the values were probably all within the federal standard but it is not certain that they were below the BAAQMD standard.

Under the relatively infrequent conditions of east wind, there is a possibility that emissions from the Potrero Power Plant could pass over the site. Trace element concentrations from this source have been estimated at 0.000001 mg/m^3.[7]

4. Carbon Monoxide

Carbon monoxide (CO) is the air pollutant from vehicular exhaust most likely to be a problem in San Francisco. The major source of CO near the project is the James Lick Freeway (Highway 101), which is separated from the proposed project site by an approximately 15-foot strip of eucalyptus trees and by Kansas Street. According to CalTrans, Highway 101 near the proposed project is one of the most heavily travelled freeways in the Bay Area.[8] This highway carries approximately 220,000 vehicles per day.[8] As project trips would be less than 1% of the Highway 101 trips, project generated air pollutants would be undetectable against the existing background of emissions from Highway 101. The BAAQMD monitoring staton at 900 23rd Street is the closest air monitoring station to the project project. During 1979, the CO standard was exceeded once (compared to twice at the 939 Ellis Street Station). Nitrogen dioxide and sulfur dioxide standards were not violated at either station.[9]

The BAAQMD has recommended that: ". . . residential development should observe an absolute minimum distance of 50 meters from the roadway edge to habitable areas (including yards) and that an optimum distance for air quality purposes should be 100 meters."[10] The site is about 95 feet (29 meters) from the Freeway, and about 25 feet above the surface level of the Freeway.

5. Sensitive Receptors

Patients who may be particularly susceptible to the effects of inhaling toxic substances could be at San Francisco General Hospital, 1 block from the site, across the Freeway, on the north side of 23rd Street. The prevailing northwest winds would blow from the direction of the hospital toward the site. During winter storms, winds from the south could blow from the site area toward the Hospital. During rain any toxic materials in the air would tend to be washed out of the air. Traffic-associated air effects would be dominated by the Freeway passing along the east side of the Hospital and Potrero Avenue traffic on the west side of the Hospital.

Because of natural factors and the proximity of the Freeway, project-related emissions would probably not have an effect that could be detected at the hospital.[11]

Notes: Air Quality Impacts

1. Letter from David L. Storm, Ph.D., Regional Administrator, Hazardous Materials Management, Department of Health Services, to Carol Roos, OER, 4 December 1980.

2. Microscopic analysis by Robert MacDonough, S.F. Health Department, 21 July 1980.

3. Friable: easily rubbed, or crumbled into powder.

4. 43 Federal Register 46246-46277.

5. Information Bulletin 4-4-79, Atmospheric Lead in the San Francisco Bay Area, 1970-1978, BAAQMD, 1979, p. 5.

6. Analyses performed by LFE Environmental Analysis Laboratories, Richmond, under contract to Bendix Environmental Research, Inc., EIR subcontractor.

7. "Public Health Impact of Emissions From Potrero Plant," Systems Applications, Inc. report SAI No. EF 79-66 prepared for PG&E, 2 May 1979.

8. John Gersler, CalTrans, telephone conversation, 16 June 1980.

9. Contaminant and Weather Summary, BAAQMD, December, 1979.

10. Milton Feldstein, Air Pollution Control Officer, letter to City of Walnut Creek, 24 March 1980.

11. Traffic counts have a probable error of about 10%. As local traffic near the project would be less than 10% of Freeway traffic, it would not have a statistically detectable air pollution impact.

H. Toxic Substances

1. Paint Chemistry

Paints consist of pigments and a medium in which they are suspended that binds the pigment to the substrate. Varnish is a liquid coating material containing a resin that dries to a hard, usually transparent, film. Though usually clear, varnishes may contain pigments. Lacquer is a varnish that solidifies by evaporation of solvents in it. Pigments may be added to lacquers. Paints, varnishes, and lacquers were all manufactured on the site.

Paint was manufactured on this site since the mid-nineteenth century, first by the Bass-Heuter Paint Company; then from 1930-1932 by Dutch Boy, Inc., and finally by National Lead Company until 1970. National lead has not retained files on this plant.[1] According to a former plant superintendent on this site, paint, stains, lacquers and shellac were manufactured here.[2]

The most probable residual problem on the site would result from metal-containing pigment contamination of the soil under the concrete that covers most of the site (in some places it is 2 feet thick). This contamination could occur through cracks in the slab. Any organic pigments present would probably be decomposed into harmless compounds by bacteria, fungi and algae in the soil. Metallic compounds used as paint pigments would tend to stay in the soil.

Appendix C, page 137, lists some of the metal compounds used as paint pigments, and gives information on their toxicity. Many paint pigments consist of mixtures; for example, cadmium yellows may contain zinc sulfide in addition to cadmium sulfide.[3]

During the Synanon organization's tenancy on the site, from 1972 to January of 1980, there was a ceramics workshop on site. Substances used in ceramic glazes include compounds of lead, chromium, copper and cadmium.[4]

2. Soil Analyses

Except for a small area at the southeast corner of the block, the site is totally covered by buildings and concrete pavement. It is not known how long the site has been so covered. In view of the history of over 100 years of paint manufacture on the site, there has been opportunity for soil contamination due to spillage. On the basis of paint and glaze chemistry, 17 soil samples from cores taken by the soil engineer, Warren Wong, and a surface soil sample were analyzed for one or more of the following: arsenic, cadmium, chromium, copper, lead, mercury and zinc. (The probable error of the analytic values is ± 5%.) The core samples were taken from 1.3 to 20.9 feet below the surface (see Appendix C, page 139 for location and numbering of the core sites), and selected to indicate whether metal levels were present in high enough concentrations to pose a possible hazard to users of the courtyard area. As most of the site is paved, other surface samples will not be accessible until removal of the cement slabs. As it is not known how much new topsoil was brought into the southeast corner of the site for plant nursery operations, analysis of soil in this area has been deferred until the general study to be made after slab removal (see Mitigation, pages 90-91.)

A comparison of normal soil concentrations to the minimum and maximum concentrations found on the site for the 7 elements for which analyses were performed can be seen in Appendix C, page 138. Arsenic was found to be within normal soil limits. Cadmium, copper and mercury are within normal limits for soil, except for the surface sample (see pages 63-64). Zinc, lead and chromium were found to be above normal in samples other than the surface sample. See Appendix C, pages 140-146, for site distribution of these 7 elements.

Lead. Movement of lead in soil is determined by the type of lead compound, the binding capacity of the soil and the acidity of the soil. Lead can be absorbed by plant roots, the degree of absorption increasing in acidic soils. Therefore, the site should be developed in such a fashion that plant roots would not reach soil with above normal lead content. The lead pigments used in paints are water insoluble, so they would be expected to move slowly through the soil, remaining over long periods. Lead has no known role in normal human physiology, and has known adverse effects ranging from anemia, abdominal pain, low blood pressure, loss of appetite and insomnia to brain effects with convulsions often terminating in death, at high concentrations.[5]

The analytic data suggest that lead entered the soil at the north-central and northeast portions of the site. Slow movement through the soil resulted in decreasing concentrations horizontally toward the south and west sides of the block, the expected direction of ground water movement, and with increasing depth. Most of the lead appears to be within 2 feet of the surface in the area of boring No. 2 and the surface sample. The highest concentration found was 4800 ppm[6] in the surface sample, 4600 ppm above the normal soil lead range and 4792 ppm above the low value of 5.6 ppm, in Core 1. This sample is thus 800 times the minimum level for the site, and 24 times the maximum normal soil range for lead. Maximum lead concentrations found on this site are in the low range of 1,000 to 100,000 ppm lead values found in Oakland where a lead battery manufacturing site was developed as a public park after removal of the surface soil.[7]

Zinc. Zinc was found in highest concentration on the north side of the site in the surface sample and in Core No. 2; zinc decreases moving west, south and by depth. The highest value, 4200 ppm in the surface sample, was 3950 ppm above the normal soil range and 4192 ppm above the low value of 8 ppm in Core 2 at 10.4 feet. This represents an approximately 350-fold increase over background levels on the site. Zinc distribution on the site is shown in Appendix C, page 146. Trace amounts of zinc are required in the human diet as components of cellular catalysts. Ingestion of excess zinc causes nausea and vomiting which tend to remove the material from the system. Zinc compounds are generally less toxic than lead compounds.[5]

Chromium. The distribution pattern of chromium on the site differs from that of lead and zinc, the highest concentrations occurring in Core 8 at the southwest corner of the site, and no systematic variation of concentration with depth is evident. The two highest concentrations, 1000 and 900 ppm occurred in boring No. 8, at depths of 9.4 and 20.9 feet, respectively. These 2 samples are the only samples indicated as shale in the preliminary boring logs of the soil engineer. The third highest concentration, 350 ppm at 15 feet in boring No. 4, was the only sample partially composed of serpentine. Chromium is normally associated with serpentine rocks and tends to concentrate in clay.[8] Those samples identified in the boring log as dominantly clayey ranged in chromium content from 140 to 260 ppm. Those samples identified as dominantly sandy ranged from 25 to 100 ppm chromium. The chromium content of the samples appears to be due to natural soil and rock composition. Residents would not come in contact with the rock under the site and soil concentrations are generally within the normal range for soil. For distribution of chromium on the site, see Appendix C, page 142.

Like zinc, trace amounts of chromium are required in the human diet. Workers in the chromate-producing industry, exposed to chromium levels substantially above those required, have an increased incidence of lung cancer.[9]

Cadmium. Cadmium was found at 17 ppm in the surface sample taken near the loading dock.

Values in 3 other samples taken at depths of 1.3 to 9.4 feet were all below 1 ppm. The 1.3 foot depth sample was taken approximately 7 feet from the surface sample. Typical soil cadmium concentrations are 0.1 to 7 ppm. The background level at this site is toward the lower end of this range. It appears that cadmium at the project site is probably concentrated near the surface, where it is increased about 20-fold, and has not tended to move down into the soil. For cadmium distribution on the site, see Appendix C, page 141. Cadmium affects kidney function. Increased cadmium consumption should be avoided because many Americans are already close to the level of cadmium intake that can produce symptoms. The soil containing excess cadmium would be removed by the mitigation measure discussed on pages 90-91.

Copper. Copper was 160 ppm in the surface sample, not significantly different from 150 ppm, the top of the range of normal soil concentrations. Three other samples at depths of 1.3 to 9.4 feet ranged from 8 ppm at 9.4 feet to 79 ppm at 1.3 feet. The background level at the site is about 8 to 10 ppm copper, so copper is increased about 16-fold at the surface. A value of 79 ppm at 1.3 feet, Bore 2, suggests that copper has moved further down than cadmium but not far enough to increase concentrations on the entire area under the site. For copper distribution on the site, see Appendix C, page 143.

Mercury. Mercury was 8.6 ppm in the surface sample. The analytic method used did not distinguish between different chemical compounds containing mercury. Average soil mercury concentrations are 0.1 ppm; normal soils range up to 0.4 ppm. The background at the site is about 0.13 ppm. The surface sample is increased about 65-fold over background at the site. Three samples at depths of 1.3 to 9.4 feet ranged from 0.12 to 0.35 ppm. For site distribution of mercury, see Appendix C, page 145. Potentially hazardous mercury-bearing soil would be removed by the mitigation measure discussed on pages 90-91.

Arsenic. Arsenic values on the site were all within normal soil values. The highest value, 60 ppm, was obtained in boring No. 4 at 14 feet, in the sample containing some serpentine, suggesting that it may be associated with the natural content of the sample. The values of 11 and 13 ppm at boring No. 2 and the lack of correlation of concentration with sample depth suggest that arsenic was not spilled in the area where lead and zinc have the highest values and the arsenic may all be of natural origin.

3. Groundwater Quality

Groundwater under San Francisco is part of an aquifer extending under San Mateo County. Some communities in San Mateo County derive part of their drinking water from wells; therefore, it is theoretically possible for ground water contamination in San Francisco to affect San Mateo County drinking water.

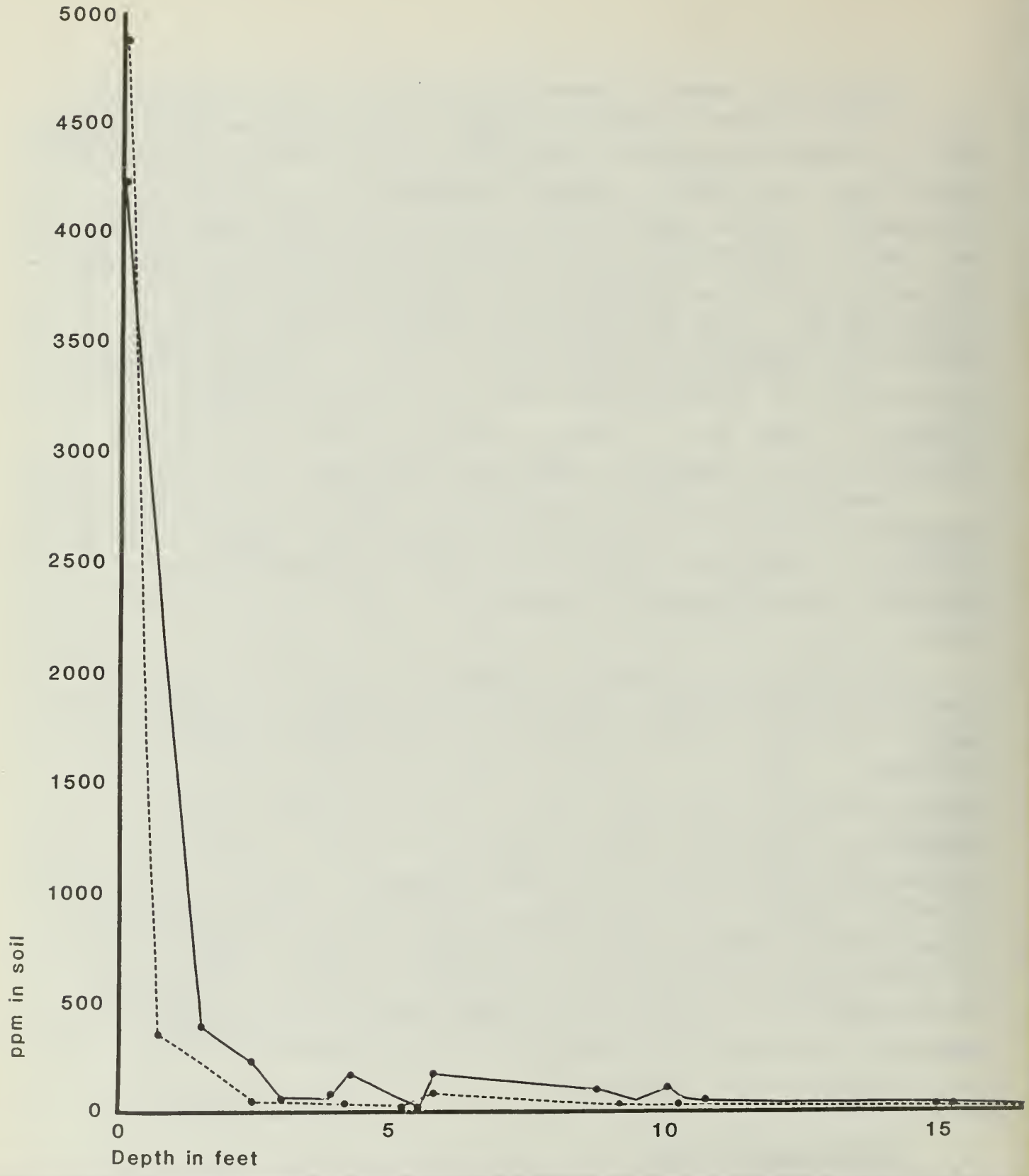
Exhibit 22, page 66, shows that lead and zinc concentrations on the site drop off rapidly with depth. At depths from 5 to 15 feet, zinc concentrations are from 19 to 120 ppm, compared to a normal soil range of up to 250 ppm (Appendix C, page 138). Groundwater would be expected to be moving west toward and under the Freeway. There is no indication from available data that zinc spilled on site is moving off-site in concentrations likely to exceed 250 ppm. Some zinc is probably moving off-site near borings 7 and 9 (Appendix C, page 146). As these amounts are below 250 ppm and zinc concentrations tend to decrease with depth (Exhibit 22, page 66), it appears improbable that zinc from this site would move far enough to reach the San Mateo County line.

Lead concentrations at 5 to 15 feet depth are 6 to 80 ppm (Appendix C, page 144), compared to a normal soil range of 1 to 200 ppm. As lead has moved less through the soil than zinc, the potential for groundwater contamination is less than that for zinc.

As indicated by Appendix C, page 140, arsenic on site is within the normal range; cadmium is above normal in the surface sample and at the low end of normal at other sampling sites (Appendix C, page 141); copper is borderline high in the surface sample and within the normal range at other sampling locations (Appendix C, page 143); and mercury is elevated at the surface sample site, at the top of the normal range at 1.3 feet in boring 2, and at typical soil concentrations at borings 4 and 8 (Appendix C, page 145). These elements are all either natural in the soil or confined to localized surface-contaminated areas. If the site is developed by the sponsor, surface-contaminated soil would be removed. This would be expected to eliminate potential future risk of ground water contamination.

4. Incinerator/Chimney

On the Rhode Island Street site frontage there is a brick incinerator which project sponsor would retain for visual and



Relationship of Zinc & Lead Concentrations to Depth

---•--- Lead

—•— Zinc

Exhibit No. 22

historic interest. The incinerator extends 20 feet above the sidewalk, 30 feet above the paved surface to the south of the incinerator, and 35 feet above its base in the building. The inside of the incinerator is coated with a black residue which is peeling in some places. Because of the potential for carcinogenic substances in such incinerator residues, and the potential for people to come in contact with this material (the incinerator is big enough to stand in -- the base is 9'4" x 8' -- and presently easily accessible from inside the buildings on the east side of the property), this material was analyzed for polyaromatic hydrocarbons (PAH) which were judged to be expected by toxicological consultant, Selina Bendix, Ph.D.

Analytic results on a single sample[10] indicate the presence of 400 ppm ± 10% PAH. The PAHs considered most hazardous by NIOSH (National Institute for Occupational Safety and Health), benzo-alpha-pyrene, benzoepsilon-pyrene, pyrene, chrysene and anthracene, were not detectable. In the presence of so many other PAHs, 20-25 ppm of any of these 5 substances would have to be present to be detectable. These 5 PAHs are carcinogenic and at least 80 carcinogenic derivatives of these 5 compounds are known.[11] Benzo-alphapyrene is also teratogenic.[12] In view of the large number of PAHs found to be carcinogenic, it is prudent to consider all of the 400 ppm of PAHs to be carcinogenic.

5. Waste Disposal

Various chemicals related to activity on the site remained at the time of initiation of this EIR in June 1980. A list of these materials is given in Appendix C, page 129. The following materials on this list appear on the state Hazardous Waste List:[13] phosphoric acid, hydroacetic acid, methylene chloride, gasoline, ammonium nitrate, isobutanol, styrene and hydrochloric acid. The removal and disposition of these, and possibly some of the other materials on the site, is subject to the hazardous waste handling regulations in Title 22, Division 4, of

the California Administrative Code and Chapter 615 of the California Health and Safety Code. The Federal Environmental Protection Agency has designated wastes from paint manufacturing as hazardous wastes under the Resource Conservation and Recovery Act of 1976. This action was taken because of the presence of chromium, lead, mercury, nickel, antimony, cadmium, silver and various toxic organic chemicals in paint wastes.

Materials on the site classified as hazardous must be disposed of at a special hazardous waste disposal site. The Regional Water Quality Control Board has identified 5 sites in the Bay Area as hazardous waste, or Class I, disposal sites. These sites are in the industrialized area along the east side of San Pablo Bay and in northern Contra Costa County. None of these sites accepts materials in drums, as found on this site. The developer contracted with Zero Waste, Inc. to remove these materials in conformance with applicable regulations. Field check by the EIR consultant on 25 November 1980 indicated that most of the containers of chemicals on the site had been removed. Five 55 gallon drums labelled "Chicago Candy Co." remain. Nontoxic reusable materials from the site, remaining from the Synanon organization, have been given by project sponsor to local nonprofit organizations.

Many chemical waste disposal sites have proven to have drums of chemicals below the surface. In the absence of information about past waste disposal practices at the site, it is possible that subsurface storage tanks or other disposal exist on the site.

Along the east side of the block, under the sidewalk, there are a number of tanks, Toward the northern end of the block there are 5 metal storage tanks of 4.8 feet diameter, with manhole frames and covers in the sidewalk, spaced approximately 22 feet apart (center to center). Associated with these tanks are five 2 x 2 ft. metal covers in the sidewalk over inlet valves that connect to the subsidewalk tanks as well as pipes going through the retaining walls. The equipment these pipes connected to has been removed.

These 5 tanks were installed in 1946 pursuant to a Fire Department permit. The permit lists the contents as mineral spirits with a flash point[14] of 115°F. and tank size as 11,100 gallons. The Fire Department requires that any subsurface tank abandoned for more than 6 months either be removed or filled with sand and rendered inert. Ken Long, Fire Department Fire Protection Engineer,[15] recommends that these tanks be removed. It is likely that these tanks are now empty; however, there is a possibility of a fire hazard if vapors remain.

Further south there are more metal covers in the sidewalk and patches of newer concrete which may indicate former plate locations. Those plates that are moveable have valves under them. It seems probable that at least some of these valves still have tanks under them. It is not known whether these tanks are empty or what their past or present contents may be.

On the east side of the courtyard are two valves, labelled "gas fill cap" on the surveyor's map,[16] which may be inlets for a gasoline storage tank(s).

The valves to all the tanks are rusty and could not be moved.

Notes: Toxic Substances

1. Samuel R. Wilson, Director of Distribution, Coating Group, Dutch Boy, Inc., letter received 17 July 1980.

2. Richard J. Marklin, Pioneer City, California, telephone conversation of 17 July 1980.

3. Cadmium lithopone pigments contain cadmium sulfide and barium sulfide; cadmium sulfoselenides are mixtures of cadmium sulfide, cadmium selenide and selenium sulfide; and the mercadium pigments contain mercuric sulfide and cadmium sulfide. National Toxicology Program, First Annual Report on Carcinogens, July 1980, Vol. II, p. 77.

4. For a brief discussion of ceramic chemistry, see Demo, Allan A., "Chemistry for Potters, J. Chemical Education," 57:72-275, 1980.

5. NIOSH/OSHA Pocket Guide to Chemical Hazards, USDHEW and US Dept. of Labor, 1978, p. 118; Sax, N. Irving, Dangerous Properties of Industrial Materials, 5th Ed, Van Nostrand, 1979, pp. 766 et seq.

6. Another portion of this sample, analyzed by a different method, gave 5200 ppm.

7. Wesolowski, Jerome J. et al., "The Identification and Elimination of a Potential Lead Hazard in an Urban Park," Archives of Environmental Health, 34:413-418 (1979).

8. United States Mineral Resources, Geological Survey Professional Paper 820, 1973, p. 112.

9. National Toxicology Program, First Annual Report on Carcinogens, July 1980, Vol. 1, p. 22.

10. Analysis performed by LFE Corporation.

11. Listed in NIOSH Registry of Toxic Effects of Chemical Substances, 1978.

12. Teratogenic = causing birth defects.

13. California Administrative Code, Title 22, Division 4, Chapter 30, Section 66680.

14. Flash point = the lowest temperature at which vapors from a volatile liquid will ignite momentarily when a small flame is applied under specified test conditions; an indication of degree of fire hazard (the higher the flash point, the lower the hazard).

15. Telephone conversation, 25 November 1980.

16. Exhibit 3, page 6; larger scale drawing available for public review at the Department of City Planning, 45 Hyde Street, Room 319.

I. Energy

1. Building Materials

The energy consumed for heating, hot water, lighting, etc. during the lifetime operation of buildings is greater than the energy required to make building materials, transport them to the site and construct a building. The energy required for building materials is not negligible, however, as can be seen from the following list. The use of aluminum and copper increases the energy intensiveness of construction.

TABLE 9: ENERGY INTENSIVENESS OF TYPICAL BUILDING MATERIALS

	Energy to Fabricate	
Material	BTU* per lb.	BTU* per unit
Aluminum	41,000	
Ceiling materials	1,500	
Concrete	400	
Concrete blocks (8"x8"x16")		15,200/block
Copper	40,000	
Drywall	2,200	
Glass	12,600	
Paint	4,100	
Roofing		6,900/sq. ft.
Steel	13,800	
Vinyl tile	8,000	

* BTU = British Thermal Unit; a standard unit for measuring heat, about equal to that from burning one standard wooden kitchen match. Technically, it is the quantity of heat required to raise the temperature of one pound of water 1° Fahrenheit at sea level.

Source: Kegel, Robert A., "The Energy Intensity of Building Materials," Heating/Piping/Air Conditioning, June 1975, pp. 37-41.

Construction energy consumption for the proposed project is estimated to be the equivalent of 11 million kilowatt hours (kwh) of electricity, based on an estimated energy consumption of 9.3 million kwh per $10 million of construction cost.[1] The estimated construction cost for the proposed project is approximately $11.8 million

2. Operating Energy Consumption

If natural gas is used for heating hot water, cooking and space heating, each unit would use about 100 therms (10 million BTU) of gas per month and 300 kwh of electricity per month, or about 13,000 therms of gas and 40,000 kwh of electricity per month for 132 units.

If electricity is used for other purposes, approximately 3 times as much fossil fuel would be used as in the direct burning of natural gas. Use of electricity for heating hot water and space heating would increase electrical consumption to about 1,000 kwh/mo./unit, or 137,000 kwh/ no. for the whole project, and would decrease gas consumption to 25-40 therms/mo./unit, or 3,400 - 5,500 therms/ mo.for the project.[2] Electrical space heating and cooking would be approximately 2.7 times as expensive as gas. Assuming that electricity would not be used for space heating, the connected load would be approximately 300 kilowatts.

Assuming use of gas for water and space heating and for cooking, electricity would be mainly used for lighting. Peaks would be expected in the morning, while people were getting ready to go to school and work, and in the evening, between 5 and 11 p.m., when all members of the household would tend to be home using appliances and lights. The evening peak would tend to be larger than the morning peak. Electrical energy use would peak during the short days of winter, when lights would be on longer, and would be lowest during the long days of summer.

Natural gas load distribution curves would be similar to those projected for Ocean Beach Park Estates, a larger combined

residential-commercial project.[3] The summer minimum would occur in the middle of the day when people would be least likely to be home and the winter minimum would occur in the afternoon, the warmest part of the day. The winter maximum would occur in the morning due to space-heating to day temperatures. Gas consumption would peak in the months of December and January, when the most heating would be required, and would be at a minimum in September and October which are usually the warmest months in San Francisco.

3. Energy Conservation

Air Quality. The more carefully a building is constructed, with attention paid to be fit of windows and doors, the smaller the exchange of air through cracks and the lower the level of energy requirements for heating and cooling, if any. In order to minimize noise intrusion from freeway traffic, windows on the west side are expected to be double pane glass, which would also decrease heating energy use (see Mitigation Chapter for further discussion of double pane glass).

As building air leakage is reduced, exposure of occupants to gases given off by building materials increases. This is of particular concern in the cases of radon and formaldehyde. Radon is a radioactive gas naturally given off in varying amounts by all building materials. Radon concentrations increase detectably in buildings with ventilation rates below 0.3 air changes per hour.[4] Detailed information on the potential hazard of increased radon exposure in energy-efficient buildings is not available. This matter is being investigated by the Federal Department of Energy (DOE). Current belief is that "routine" measures to increase energy efficiency are not increasing radon exposure enough to have a detectable effect.

Formaldehyde is a carcinogenic substance used in the manufacture of resins, wall board, and insulation. Part of the formaldehyde remains unreacted when these materials are made and

slowly diffuses out of the materials. In relatively air-tight homes, the formaldehyde concentration may become high enough to produce irritant effects on the occupants. Formaldehyde is an irritant to the respiratory tract and eyes at 0.01 ppm[5] and to skin at 0.15 ppm.[6] The NIOSH recommended standard for occupational exposure to formaldehyde is 1.2 ppm.[7] The European indoor air standard is about 0.1 ppm. It has been found that energy-efficient buildings, with reduced air infiltration and low ventilation rates of or below 0.3 air changes per hour, exceed the European standard when outdoor formaldehyde concentrations are 0.016 ppm.[8]

Solar Energy. Use of solar energy is under consideration by project sponsor, see page 94. Use of solar energy for heating water would decrease demand for nonrenewable energy sources. Current cost for solar water heaters on single family homes is about $3,000 per unit installed.[9] Solar collectors for a recently built San Francisco apartment building with a similar number of units to the proposed project cost about $120,000 and are expected to provide 60% of the hot water supply.[10] Cost for the proposed project would be expected to be similar.[11] Approximately 35-60 square feet of collector per dwelling unit would be required,[12] or 5,000-8,000 square feet for the whole project.

Fuel savings could more than offset the cost of solar panels during the lifetime of the project; the initial costs would become part of the purchase cost of the units. Payback time due to reduced fuel costs would be 5-7 years. Tax benefits for solar installations include tax credits for a portion of system costs and accelerated depreciation.

Solar cells have the advantages of producing electricity and not involving use of heat transfer liquids which can leak. Their disadvantage is expense, partially due to their low efficiency (maximum conversion of 15% of solar energy to electricity). Some solar cells involve the use of cadmium compounds and consequent risk of exposure to a toxic material of the workers who make them. Some firms hope to bring the installed cost from the present

approximately $10 per watt to $0.50 per watt by 1990. The Department of Energy has a National Photovoltaic Program aimed at production of low cost, high volume solar cells. Solar cells are not an economically viable option for the proposed project now, but may become cheap enough for retrofit within the next decade.

Wind Energy. Wind power, independent or in combination with solar units is another inexhaustable energy source. In 1977, it was estimated that "the minimum cost of a domestic plant would be about $2,500 and would supply approximately 1/4 of the energy demand of the entire household. An installation adequate to supply an average household would cost in the vicinity of $10,000."[13] A wind speed of at least 10 mph is needed for wind power generation. A 60 to 80 feet tower[14] is required, depending on upwind obstructions. The blades of a 10 kw windmill would have a spread of 30 to 35 feet.[15] A $20,000 wind generator in an average wind of 10 mph would produce 22,000 kwh/yr. or 4% of the project's annual energy consumption.

Site specific wind speed records of several years' duration are required in order to calculate the potential for wind energy generation at any particular site. Such information is not available for the project site. A wind speed recorder could be placed on the roof of the project, should it be built, in order to obtain information for a future decision on the feasibility of windpower generation on the site. Any future decision on installation of 1 or more windpower generators would also have to take into account windmill noise generation, community response to visual impact of wind generators and the economics of windpower generation.

Notes: Energy

1. City and County of San Francisco, FEIR, Ocean Beach Park Estates, EE 78.178, 30 August 1979, p. 125, adjusted for construction cost inflation.

2. Robert Tucker, Dealer Representative, PG&E, telephone conversation, 19 August 1980.

3. City and County of San Francisco, EE 78.178, FEIR, Figure No. 24, page 127, 30 August 1979.

4. Hollowell, Craig D., et al., "Radon-222 in Energy Efficient Buildings," American Nuclear Soc. Mtg. 11-16 November 1979.

5. California State Energy Resources Conservation and Development Commission, EDIR Residential Insulation Program, 22 February 1978, p. 60.

6. NIOSH Registry of Toxic Effects of Chemical Substances, 1978, p. 587.

7. NIOSH, op. cit.

8. Lin, Chin-I, et al., "Indoor/Outdoor Measurements of Formaldehyde and Total Aldehydes, 178th, Nat'l Mtg. Amer. Chem. Soc., 9-14 September 1979.

9. John Burton, Integral Design, "Low Cost integral Solar Water Heaters," No. Cal. Solar Energy Assn. Newsletter, p. 7, September 1980.

10. Solar Center, San Francisco, telephone conversation, 28 August 1980.

11. Bryan Kiefer, Jones & Kiefer Construction Co., San Francisco, telephone conversation, 28 August 1980.

12. Tim Duane, Intern, PG&E, telephone conversation, 28 August 1980.

13. Senior Seminar, Environmental Studies Group Major, UC Berkeley, "Energy in the Bay Area." June 1977, p. 157.

14. Windmills are not subject to height limits per section 260(b)1(A) of the Planning Code.

15. Neil Holbrook, Power Towers, Inc., Pleasant Hill, telephone conversation of 9 February 1981.

J. Community Services

1. Water and Wastewater

According to the most recent San Francisco Water Department annual report,[1] City-wide residential water consumption is 35.8 million gallons per day (mgd). Assuming a population of 675,000,[2] this means an average of 55 gallons per day (gpd) per person.

Assuming 2.1 persons per unit, a 132 unit development would consume 15,200 gpd, or 0.0004% of San Francisco's annual residential water consumption. The water supply in the area would be adequate for the project.[3]

Sewage from the site drains to the Southeast Water Pollution Control Plant (SEWPCP). There are 12 inch diameter collector sewers on the west, north and east sides of the site and a 16 inch sewer on the south side. These sewers drain to a larger sewer in Kansas Street, a few feet west of the collector sewer.[4] These sewers could accommodate the wastewater from the proposed project.

Wastewater flows are typically 70% of water use.[5] In San Francisco, where lots tend to be smaller than elsewhere in the Bay Area, and a smaller percentage of water is used for landscape irrigation, the figure is 90%. Expected flow from 132 units would

be 0.90 x 15,200 or 13,700 gpd. The SEWPCP has a capacity of 70 mgd, and receives an average of 22 mgd in dry weather.[6] The flow from this project would constitute 0.06% of the dry weather flow to the plant.

The effluent from the SEWPCP does not meet applicable standards. Improvements are under construction which will bring the treatment level to secondary treatment and increase the capacity of the plant.[7] This is one of many projects implementing the San Francisco Wastewater Management Master Plan. Implementation of this entire plan will be required to bring the City into compliance with the Federal Clean Water Act.

2. Fire and Police Services

According to Chief Robert Rose (meeting on 2 July 1980), water supply, hydrant location and fire equipment access are adequate for the proposed project at the proposed site.

Police department records of incidents "in the area of Kansas Street and Rhode Island between 23rd and 24th Streets" are as follows:

TABLE 10: CRIME INCIDENCE IN PROJECT AREA

Type of Crime	1978	1979	1980 to July 1980
Auto Theft or Burglary	10	15	8
Robbery	0	1	2
Residential Burglary	4	1	1
Battery	1	1	0
Petty Theft	0	1	0
Kidnapping	0	1	0

Source: Letter from Officer Robert Baldocci, #441, of 3 July 1980.

Officer Alfred Baldocci of the Potrero Police Station states that, "As you can see from this report, the incidence of crime in the area is minimal and this picture should change for the better with the increase of public activity in the area.... I don't feel at this time that a development of this nature will cause any particular problem for our department's operation."[8]

3. Solid Waste

Assuming 2.5 pounds of solid waste production per person per day,[9] and 2.1 persons per unit, 132 units would produce about 700 pounds of solid wastes per day or 0.023% of the 1500 tons produced daily by the City as a whole. Household solid wastes produced by the project would be disposed of at the landfill site in Mountain View, Santa Clara County. The capacity of this site is expected to be exhausted by about 1983 and no alternative future method for disposal of San Francisco's solid waste has yet been selected. For a discussion of alternatives under consideration, see the Final EIR for a "Resource Conversion Center, Brisbane/San Francisco, California," City of Brisbane, 1980.[10]

4. Schools

Children residing on the site would attend the following schools: Elementary (grades K-5) students would walk 2 blocks to Starr King at 1215 Carolina Street; middle school (grades 6-8) students would walk 4 blocks to Potrero Hill at 655 De Haro; and high school students would go approximately 1-1/2 miles to Mission High at 3750 18th Street. The above school assignments are effective through 30 June 1981.[11] The School District as a whole could accommodate students from the proposed project.[12]

Notes: Community Services

1. Report for Fiscal Year 1978-9, San Francisco Water Department, 1979, page 11.

2. Preliminary report on "Population and Housing in the San Francisco Bay Region 1979-1980," First Draft, ABAG, 4 February 1981.

3. Jack Kenck, City Distribution Manager, San Francisco Water Department, telephone conversation, 16 June 1980.

4. Letter from Mervin Francies, Engineering Associate II, San Francisco Wastewater Program, received 3 July 1980.

5. Metcalf & Eddy, Inc., Wastewater Engineering, 2nd Ed., McGraw Hill, 1979, page 21.

6. FEIR, Southeast Treatment Plant Dry-Weather Expansion & Interim Point Discharge, City and County of San Francisco, April 1975, p. IV-1.

7. Secondary treatment is the treatment of wastewater by a biological or physical chemical process, after primary treatment. It provides approximately 90% removal of BOD. BOD = an abbreviation for biochemical oxygen demand, a standard measure of water and wastewater quality.

8. Letter from Officer Robert Baldocci, #441, of 3 July 1980.

9. Solid Waste Generation Factors in California, Technical Information Services, Bulletin #2, California Solid Waste Management Board, 8 July 1974.

10. Available for public review at the Department of City Planning, Office of Environmental Review, 45 Hyde Street, file number EE 79.307/NLA.

11. Edward R. Schulman, Program Manager, School Operations, San Francisco Unified School District, letter received 3 July 1980.

12. Schulman, E.R., telephone conversation, 26 June 1980.

K. Earthquake Effects

Retained Structures. The 5-story building at the corner of Kansas and 24th Streets and the brick facades designated for retention would be examined by a structural engineer, and his/her recommendations would be followed in project design (see Mitigation Chapter, page 95).

Seismic Safety. A site specific geotechnical analysis, as required by the Seismic Safety Element of the General Plan for the City and County of San Francisco, has been made by Warren Wong of Geo/Resources (California License No. CE 25777). Implementation of the foundation recommendations may become a condition for approval by the Planning Commission or the Bureau of Building Inspection.

Retaining Wall. Along the eastern property line there is a 10 to 13 foot tall retaining wall. In the sidewalk area with asphalt paving, east of the retaining wall and south of the auto repair building, there is evidence of subsidence and slippage toward the retaining wall suggesting some instability in this area. Where it can be seen, this retaining wall is of varied design ranging from 4 to 10 inch thick concrete to 12 inch thick wood. It is likely that the wooden sections, at least, do not meet current City building codes. The integrity of the water, sewer, natural gas, electrical and telephone lines under Rhode Island Street is dependent on the structural stability of this retaining wall. Construction is planned up to these walls so that below sidewalk grade portions and foundations of buildings on the east side of the proposed project would depend on the integrity of this retaining wall.

L. Plants

Landscaping in the courtyard would not be visible from the sidewalk. As designed, project buildings would come to the sidewalk, leaving no space for planting. One street tree would be planted for each 20 feet of street frontage (over 60 trees), as required by the Planning Code. Existing shrubs and trees on the east side of Kansas Street would screen much of the view of the Freeway.

M. Short-Term Uses of the Environment vs. the Maintenance of Long-Term Productivity

Development of the project now would commit the site to residential use and would probably constrain future decisions about use of the site for at least 50 years. In view of the current need for housing in San Francisco and the probable long-term nature of this need, it appears reasonable to make a commitment to housing use rather than leave future options open.

If the 1980 increase of 15% in San Francisco construction costs persists in future years, then it will become progressively more difficult to finance housing construction and to find buyers who can afford new housing. If this site is to be committed to a housing development of some type, the sooner this is done, the lower the cost of the completed units and the greater the number of households that could afford them.

The developer wishes to pursue the proposed project at this time because costs for construction and financing of such developments may increase at a faster rate than prospective buyers' incomes.

N. Growth-Inducing Impact

The proposed project would add about 275 residents on the now vacant site. The project would meet existing housing needs rather than attracting new City residents who would otherwise not consider moving into the City.

Most of the new residents would probably be upper middle income persons because only these persons could afford the units. Most of these people would hold their jobs whether new housing was available in San Francisco or not; however, there is increasing evidence that people are reluctant to take jobs in San Francisco because of the difficulty in obtaining housing.[1] The availability of sufficient housing to meet San Francisco demand would probably reverse the current trend to population loss.[2] This project alone would not have a noticeable effect on San Francisco's population.

Notes: Growth-Inducing Impact

1. Bay Area Council, "Housing, the Bay Area's Challenge of the '80s," December 1980.

2. ABAG, "Population and Housing in the San Francisco Bay Region 1970-1980," First Preliminary Draft, 4 February 1981.

O. Neighborhood Concerns

Neighborhood organizations were contacted regarding the project.[1] These organizations appear to be divided among those who view the project as a stabilizing influence on the neighborhood, those who think the project would increase housing costs in the area and those with environmental concerns.

One view is that the project's housing costs would be too expensive for most current residents of the community[2] and that most of the units would be too small for the large families who currently live in the area.[3] There is concern that if the project is built, housing costs in the community would rise more rapidly than without the project. As housing costs increase it would be more difficult for existing residents to buy or rent housing in the community.[4] Some feel that low and moderate income housing should be built on this site.[5] Some think that the neighborhood already has enough low income housing and that government financial assistance for low and moderate income housing should go toward rehabilitation of abandoned units in the housing projects near the site.[6]

Other neighborhood groups feel that the project would lead to reinvestment in and revitalization of the neighborhood[7] and add people and security to a block subject to vandalism.[8]

There is concern that the project does not include enough open space for project residents,[9] that the project would be too dense and out of scale with the existing community of mostly two-family units.[10] Groups with environmental concerns think that noise from the James Lick Freeway would create unfavorable living conditions in the project,[11] while others are concerned that chemicals from the site's former use for paint manufacturing may be harmful.[12]

Notes: Neighborhood Concerns

1. Potrero Hills League of Active Neighbors (PLAN), discussion with Maria Vermiglio, President: 23 June 1980.

Potrero Hills Community Development Corporation (CDC), discussion with Jim Queen, President and Brian Chekowski, Counsel, 7 July 1980.

Potrero Hills Boosters and Merchants Association (PHB&MA), discussion with Mike Krivit, President, 3 July 1980 and appearance before PHB&MA Board, 29 July 1980.

Potrero Hills Homeowners and Renters Association (PHH&RA), discussion with Joan Tricamo, 3 July 1980.

Potrero Hill Advisory Committee (PHAC), special meeting 8 July 1980.

Contacted by Kreines & Kreines, EIR consultants.

2. PLAN and CDC.

3. PLAN.

4. CDC.

5. CDC.

6. PHB&MA.

7. PHB&MA & PHH&RA.

8. PHB&MA.

9. PHAC.

10. PLAN.

11. PHH&RA

12. PHAC

V. MITIGATION MEASURES

Mitigation measures described below may be part of the project as proposed by the developer or may either be under consideration or rejected by the developer, as noted. Those measures not part of the project could be required as conditions of project approval.

A. Urban Design

Impact. The mass and design of the project would not match surrounding buildings, particularly along Kansas Street.

Mitigation. The developer would consider making changes to the existing plan for the Kansas Street units to bring them into greater conformity with the prevailing character of development on Potrero Hill. The developer would consider continuing the peaked roof design of the rest of the project along Kansas Street, where the proposed structure would otherwise present a solid, unbroken facade. A decision would be made by the developer after consultation with staff of the Department of City Planning, the noise consultant and the project architect, and before completion of construction plans.

The scale of the rehabilitated warehouse building would be mitigated by attention to creation of pedestrian-scale visual interest in the design of the commercial space on the first floor. Placement of bus shelters on sidewalks bounding the project is under consideration. Submission of scale drawings for treatment of the new facades of the warehouse building and of adjacent sidewalk could be required by the Planning Commission as a condition of the Conditional Use Permit. Submission of plans for sign control could also be required.

B. Historic Structures

Impact. Development of the site could result in loss of the visually prominent chimney on Rhode Island which is listed in the Department of City Planning 1976 Architectural Inventory.

Mitigation. Project sponsor would retain the chimney.

C. Housing Cost

Impact. The new housing prices could price some people out of the market for the project.

Mitigation. Remodeling of the building at Kansas and 24th Sts. would lower the cost per unit in the development below the cost of all new construction. More people would be able to afford the units at the lower prices (note that all new market rate housing is relatively expensive).

D. Noise

Impact. Freeway noise could disturb project occupants.

Mitigation. State regulations (Title 25, California Administrative Code) require that window and wall construction provide for noise reduction to mitigate the existing freeway traffic noise impacts on the west side of the project. The interior noise level must be limited to a maximum CNEL of 45 dB. Acoustical analysis of the proposed building will be performed to determine the extent of the noise control that would be necessary. Preliminary calculations indicate that windows in those walls with maximum outdoor noise exposure would require double glazing or laminated acoustical glazing with an STC[1] rating of about 30. The developers have stated that project construction would conform to the Noise Insulation Standards.

The effect of construction noise would be controlled by the provisions of the San Francisco Noise Ordinance[2]. The project sponsor must comply with this ordinance.

In accordance with Section 2908 of the San Francisco Noise Ordinance, no construction would take place between the hours of 8:00 p.m. and 7:00 a.m.[3]

E. Toxic Substances

Impact. Potentially toxic dust could drift off site during demolition.

Mitigation. In order to avoid disperson of potentially toxic dust through the neighborhood, Bendix Environmental Research, Inc., toxic materials consultant for this EIR, recommends that continuous water spray be used during demolition to achieve adequate wetting to prevent dust emissions, as required for demolition of buildings containing asbestos by 39 CFR 1910.1001. Project sponsor would consider implementation of this measure. The decision will be made after consultation with the demolition contractor and before commencement of demolition. This could be required by the City Planning Commission as a condition of the Conditional Use Authorization for the PUD.

The late Robert MacDonough, Environmental Health Inspector, San Francisco Department of Public Health, concurred in this recommendation and further recommended that any dusty or friable material be bagged and tied to prevent toxic dust dispersion.[4] Project sponsor is considering this measure and would decide after talking to the demolition contractor about feasibility and cost and before authorizing demolition.

Demolition of the asbestos-containing building south of the incinerator must comply with Section 1919.1001 of the Occupational Safety and Health Administration's general industry standards, Part 1901, Title 9 of the Code of Federal Regulations, which provides that employees "engaging in the...demolition of pipes, structures, or equipment covered or insulated with asbestos and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment...and

with special clothing..." The section also provides that when asbestos is removed it must be kept wet "to prevent the emission of airborne fibers." In practice this is usually achieved by use of a water spray during demolition.[6] Project sponsor would comply with applicable regulations regarding asbestos during site preparation, demolition and remodelling phases of the project.

Impact. Buildings to be retained may have asbestos-containing interior finishes.

Mitigation. Project sponsor would have the buildings to be retained checked. If interior finishes contain more than 1% asbestos, sponsor would have the material sealed or removed during renovation and prior to occupancy. Any removal would be done in a fashion to avoid exposure of workers or future occupants to asbestos containing dust.[7]

Impact. Occupants might breathe lead concentrations detrimental to their health.

Mitigation. The highest risk of lead pollution to project residents would be from the freeway west of the site. This risk would be mitigated by installation of windows that do not open in units along Kansas Street (the west side of the project). These units would have mechanical ventilation systems. The air intake for this ventilation system would be located as far east on the proposed project block and as high up as is feasible. The developer would implement this measure as part of the project.

Impact. The peeling, black, potentially carcinogenic layer inside the incinerator could be a source of human exposure to PAHs (poly-aromatic hydrocarbons); surface soil could be contaminated by PAHs.

Mitigation. Project sponsor would board up access to the incinerator to prevent contact by project residents with hazardous PAH-containing materials. The EIR consultant, Selina Bendix, Ph.D., has recommended 3 safety measures: 1) seal the opening at base of incinerator; 2) seal the top of the chimney; and 3) remove enough metal rungs on the side of the chimney to prevent access and/or injury by and/or to unauthorized persons. Dr. Ephraim Kahn of the California Department of Health Services concurs in these recommendations.[8]

The State Department of Health Services has indicated concern[5] that the exposed soil in the southeast corner of the site may have been subject to PAH fallout from smoke from the chimney. Before excavation this soil would be tested for PAHs and if any are found, disposition of the soil would be discussed with staff of the Hazardous Materials Section.

Impact. According to the State Department of Health Services,[5] the upper levels of the building in the northwest corner of the site were used to mix and store dry paint ingredients which could pose a hazard during demolition.

Mitigation. Project sponsors would have the area inspected for residual paint ingredients and, if found, have these materials removed prior to demolition.

Impact. The distribution pattern of high lead and zinc values in soil on the site is not known. Some soil samples have excessive levels of cadmium and mercury. Contact with these soils could be hazardous.

Mitigation. After removal of the existing concrete floor slabs, project sponsor, in consultation with the State Department of Health Services, would have analyses made to determine the distribution of high lead, zinc, cadmium and mercury values on the site, and 1 to 2 feet of top soil in the contaminated area

would be removed and deposited in a hazardous waste dump if necessary.

Measures designed to mitigate lead and zinc exposure would also mitigate cadmium and mercury exposure unless differences in distribution are shown by further soil analysis. The State Department of Health would monitor analyses and advise as to appropriate mitigation measures, which will be followed by project sponsor.

The soil in the depressed area of the concrete floor of the 5 story building could contain toxic materials. This area would be subjected to chemical analysis and would be removed or sealed, if necessary and as appropriate, on the basis of these tests before the area is filled in to make it level with the rest of the basement parking area. Should any toxic material be found on analysis, the Hazardous Waste Section of the State Department of Health would be consulted before decision on disposition.

Impact. The containers of chemicals on the site pose a hazard of fire and poisoning.[9] The site is not vandal-proof.

Mitigation. The project sponsor has arranged for removal of hazardous substances from the site, in accordance with applicable regulations[8] and in consultation with the State Department of Health Services.

Impact. Abandoned tanks beneath the sidewalk east of the site may contain hazardous materials.

Mitigation. In order to mitigate potential impact on construction workers, neighbors, and future occupants from toxic chemicals beneath the concrete slabs which now cover most of the site surface, the City Planning Commission or other City agency having approval power for this project would require that:

a) The subsidewalk tanks adjacent to the east side of the property and any other tanks on or adjacent to the site be opened, aired out, and any contents analyzed and disposed of according to applicable laws and regulations after consultation with the State Department of Health. The tanks would then be removed, as recommended by the Fire Department, to eliminate any possibility of hazard to construction workers or future project residents. Such removal would also permit removal of pipes from the tanks penetrating the retaining wall; these pipes would otherwise interfere with work to strengthen or replace the retaining wall. Removal would be done in such manner as not to undermine the street or substreet utilities. The holes left by the tanks would be backfilled in accordance with recommendations of a licensed engineer.

Should it prove to be technically inadvisable to remove the tanks, they would be filled with sand and otherwise rendered inert to the satisfaction of the Fire Department.

and, b) If any subsurface storage containers which appear to contain chemical wastes should be encountered during excavation on the site, construction would be halted pending investigation by the Hazardous Waste Division of the State Dept. of Health Services.

Impact. Electrical equipment containing PCBs is a hazard for persons working on the site.

Mitigation. Project sponsor would require the demolition contractor to check the site for transformers and capacitors containing fluid. The contents would be analyzed for the presence of PCBs. Any PCBs found would be disposed of in accordance with applicable regulations after consultation with the State Dept. of Health Services. All spilled and leaked PCB-containing material would be removed and appropriately disposed of prior to initiation of demolition in affected areas.

F. Energy

Impact. The production of aluminum and copper is energy intensive.

Mitigation. Project sponsor will instruct the project architect to specify materials less energy intensive than aluminum and copper wherever possible.

Impact. Heat gain and loss through windows often determines the heating and cooling needs of a building.

Mitigation. Windows on the west side of the proposed project would be double pane glass which would decrease heat loss from units during colder months. Heating season energy savings from use of double pane glass are given in the following table. Because these windows would not be openable, a mechanical ventilation system would be required. The energy required to operate this ventilation system would partially offset the energy savings from the double pane glass.

TABLE 11: SAN FRANCISCO HEAT LOSS THROUGH SINGLE- AND DOUBLE-GLAZED WINDOWS

Window Orientation	Heat Loss in BTU[1] per sq. ft. per year		Reduction in Heat Transfer
	Single-Pane	Double-Pane	
North	49,600	25,600	24,000
East and West	43,900	23,700	20,200
South	41,700	23,200	18,500

Source: Adapted by Bendix Environmental Research, Inc. from Dubin, Fred S. and Long, Chalmers, G., "Energy Conservation Standards for Building Design, Construction, and Operation." McGraw-Hill, 1978, p. 123.

[1] See definition of BTU on page 71.

Impact. Energy used by the project would deplete nonrenewable resources.

Mitigation. Project sponsor would instruct the project architect to investigate use of solar panels for hot water heating on south facing roof slopes. Any decision on the use of solar collectors would be made on the basis of cost effectiveness prior to detailed roof and plumbing design.

Before making a decision on the use of solar collectors, project sponsor or architect would contact the State Solar Business Office in Sacramento regarding experience with solar design of other multifamily projects or instruct project architect to do so.

If project sponsor should decide not to use solar collectors, he would instruct project architect to consider the following measures:

1. Incorporation of passive design features to minimize summer solar heat gain and maximize winter solar heating.

2. Design of as much of the roof areas as possible, within Planning Code height limits, at an angle appropriate for future solar collector installation.

3. Design of roofs with access for future solar collector installation and maintenance.

4. Design of buildings to take the weight of future solar panels.

5. Specification of plumbing connections appropriate for future solar installation. (As now required in Santa Clara County).[10]

6. Provision of space for a solar heat transmission fluid storage tank and controls or installation of same initially. (The collectors, not the tank and controls, are the most expensive portion of a solar installation.)

Impact. Spare heating and cooling use nonrenewable energy sources.

Mitigation. Project design will conform to the California energy insulation standards (Title 24, California Administrative Code) for new buildings. In 1976 it was calculated that the payback period for the required insulation was 7-10 years.[11] All hot water pipes will be insulated with a nonasbestos-containing material to reduce heat loss.

Impact. Low ventilation rates designed to reduce energy consumption allow buildup of toxic gases in building air.

Mitigation. Ventilation system(s) for the ventilated portion of the project on Kansas St. would be designed to provide no less than 0.5 air changes per hour so that indoor concentrations of any potentially toxic gaseous materials would be expected to be no greater than levels in older, less airtight, buildings.

Impact. Developments in which users are not individually billed for utilities tend to have higher energy and other resource consumption than those with individual meters.

Mitigation. Project sponsor would consider individual metering of water, gas and electricity for the units. The decision would be made before detailed plumbing plans are completed.

G. Structural Safety

Impact. Structures designated for retention may not be earthquake safe.

Migitation. The buildings and walls designated for retention, shown on Exhibit No. 3, page 6, were built prior to the existence of present seismic safety provisions in the San Francisco Building Code, and their potential stability in an earthquake is unknown. The Bureau of Building Inspection would require that these walls and the 5-story building be brought into conformity with present Building Code provisions, if necessary.

Impact. Movement of the retaining wall could endanger structures next to the wall, sidewalk safety, and utilities in Rhode Island Street.

Mitigation. Project sponsor would retain a California licensed engineer to examine the retaining wall, consult with the Department of Public Works, and make recommendations regarding strengthening or replacement of the retaining wall, if needed.

Should replacement of any part of the wall be necessary, this would be done with care to maintain the integrity of Rhode Island Street and its subsurface utilities.[12]

The Department of Public Works would review the disposition of the retaining wall, and structural engineers in the Bureau of Building Inspection would review design of buildings against the wall before issuance of building permits.

Notes: Mitigation Measures

1. STC = sound transmission coefficient, the ratio of transmitted to incident sound energy, a means of characterizing the noise insulation characteristics of materials.

2. Charles M. Salter, P.E., 2222 Ltd. EIR Acoustical Report, 28 August 1980.

3. Technically, the Ordinance prohibits activities producing more than 5 dBA above ambient noise levels at the nearest property line. In some cases the Dept. of Public Works issues special permits for night construction. This would be unlikely in a residential area.

4. Telephone conversation with EIR subconsultant Selina Bendix, 30 June 1980.

5. Dr. David J. Storm, Regional Administrator of the Hazardous Materials Management Section of the State Dept. of Health Services, in a letter to the Dept. of City Planning, Office of Environmental Review, dated 4 December 1980.

6. Applicable procedures are in a State Health memo of September 1977, available for public review at the Department's Office of Environmental Review, 45 Hyde Street, Room 319.

7. Applicable regulations are found in Title 8 of the California Administrative Code, BAAQMD regulations and the previously cited OSHA regulations.

8. Chief, Epidemiology Section, telephone conversation with Selina Bendix, 1 August 1980.

9. Drums of possibly hazardous materials and pesticide containers were absent from the site at the time of EIR consultant field check on 25 November 1980.

10. Ordinance Requiring Solar Hot Water Heater for Residential Domestic Use, NS1208, adopted 23 June 1980, effective 1 February 1981. Bob Sturdivant, Senior Planner, Santa Clara County, telephone conversation, 18 February 1981.

11. California Department of Housing and Community Development, Division of Codes and Standards, "Energy Design Manual for Residential Buildings," 19 April 1976, Preface. San Francisco would be expected to be at the long end of this range due to its relatively even temperature compared to the rest of the state. Energy costs have probably increased more rapidly than estimated in 1976, so the payback period would be expected to be less than 10 years.

12. Cormac Brady, Senior Mechanical Engineer, Department of Public Works, has indicated that replacement of the retaining wall would have to be done carefully to avoid damage to sidewalk and street. Telephone conversation with EIR subconsultant, Selina Bendix, of 25 November 1980.

VI. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED

A. Land Use

Rezoning would increase the permitted density on the site.

B. Noise

During project demolition and construction phases which are expected to total about 21 months, there would be a temporary increase in noise levels in the project vicinity.

C. Energy

Operation of the proposed 132 dwelling units and 8,500 sq. ft. of commercial space on a site that currently uses no energy would increase consumption of electricity and natural gas by about 14,000 therms of gas per month and 41,000 kwh of electricity per month.

D. Air Quality

The proposed project would be 71 meters closer to the freeway than the distance recommended by the Bay Area Air Quality Management District for residential development.

E. Toxic Substances

Occupants of the proposed project may come in contact with hazardous polyaromatic hydrocarbons which are probably present inside the incinerator (see Mitigation Measures, page 90).

VII. ALTERNATIVES TO THE PROPOSED PROJECT

Three alternatives, in addition to No Project, have been selected for analysis in this EIR.

A. Low Density Alternative

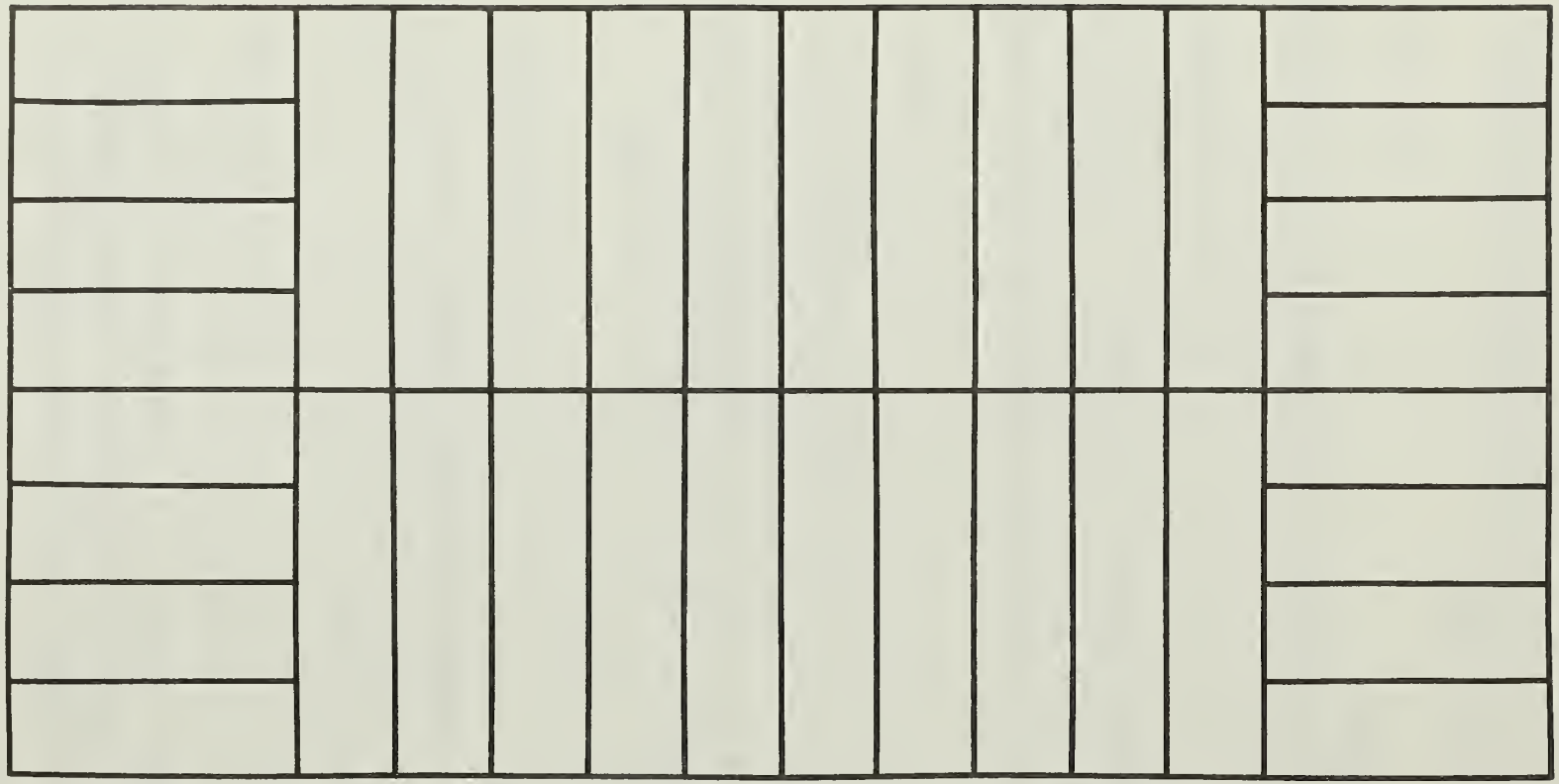
The entire site could be cleared and replaced with dwellings consistent with the existing RH-2 (Residential, House, Two-Family) zoning. Using a mix of 25 by 75 ft. and 25 by 100 ft. lots, it would be possible to divide the 200 by 400 ft. site into 36 lots. Under the Planning Code RH-2 maximum of 1 unit per 1500 sq. ft. with a Conditional Use Permit, 53 units could be built on the site. With 36 lots this would give a mix of 17 duplexes and 19 single-family residences. With a PUD and Conditional Use, 53 units could be built with common open space. (See Exhibit 23, page 100.) The units could probably have 2 or 3 bedrooms.

The sale price of the units would have to be higher than for the proposed project, because there would be fewer units requiring a greater yield per unit for a positive return on the sponsors' investment. These units would not reflect the reduction in cost per unit from rehabilitation of the two structures retained in the proposed project.

While it would maintain the neighborhood character, this alternative would create fewer housing opportunities for ownership for area residents, because the smaller number of units would be higher priced and would not provide the range of household sizes of the proposed project.

Alternative A would comply more closely with Objective 2, Policy 1, of the Residential Element of the Master Plan than the proposed project, because the RH-2 density would be closer to that of the surrounding development. It would not meet Objective 4, "Minimize hardships caused by the increased cost of housing," because the units would be more expensive than those in the proposed project.

Kansas Street



24th Street

23rd Street

Rhode Island Street

100

Low Density Alternative

—— Possible lot layout

0 25'

N

Exhibit No. 23

Alternative A would have smaller traffic impacts than the proposed project because it would generate fewer trips. This alternative would have greater parking impacts due to reduction of on-street parking spaces because of driveway curbcuts. Per unit parking demands would be greater for Alternative A because the owners of more expensive units would have more cars.

The energy consumption, water consumption, and solid waste production would be on the high side of 40% of that due to the proposed project as use would be slightly more than a straight percentage of the number of units because of 1) the larger average unit size and 2) the higher economic level of the occupants.

Removal of the chimney as an architectural reference point would elimnate an architectural resource and possibly expose construction workers and neighbors to the chemical compounds inside the chimney during demolition. Other waste disposal and potential toxicity problems would be similar to those anticipated for the proposed project.

This alternative was rejected because it would not be profitable to the project sponsor.

Subalternatives. If a duplex were to be placed on each lot, 72 units could be built. Units on the 25 x 75 ft. lots would tend to be small, probably with one bedroom. Energy consumption, water consumption, and solid waste production would be about 55% of that of the project. This subalternative was rejected for the same reason as stated above.

B. High Density Alternative

This alternative would cover the entire site and could be designed with or without commercial space. Units would surround a parking deck, as shown in Exhibit 24, page 103. Swimming and tennis facilities might be located on the roof of the structure. A total of 200 units could be approved for the site if its zoning were reclassified to RM-3 (Residential Mixed District, Medium Density). The Planning Code would require 200 off-street parking spaces.

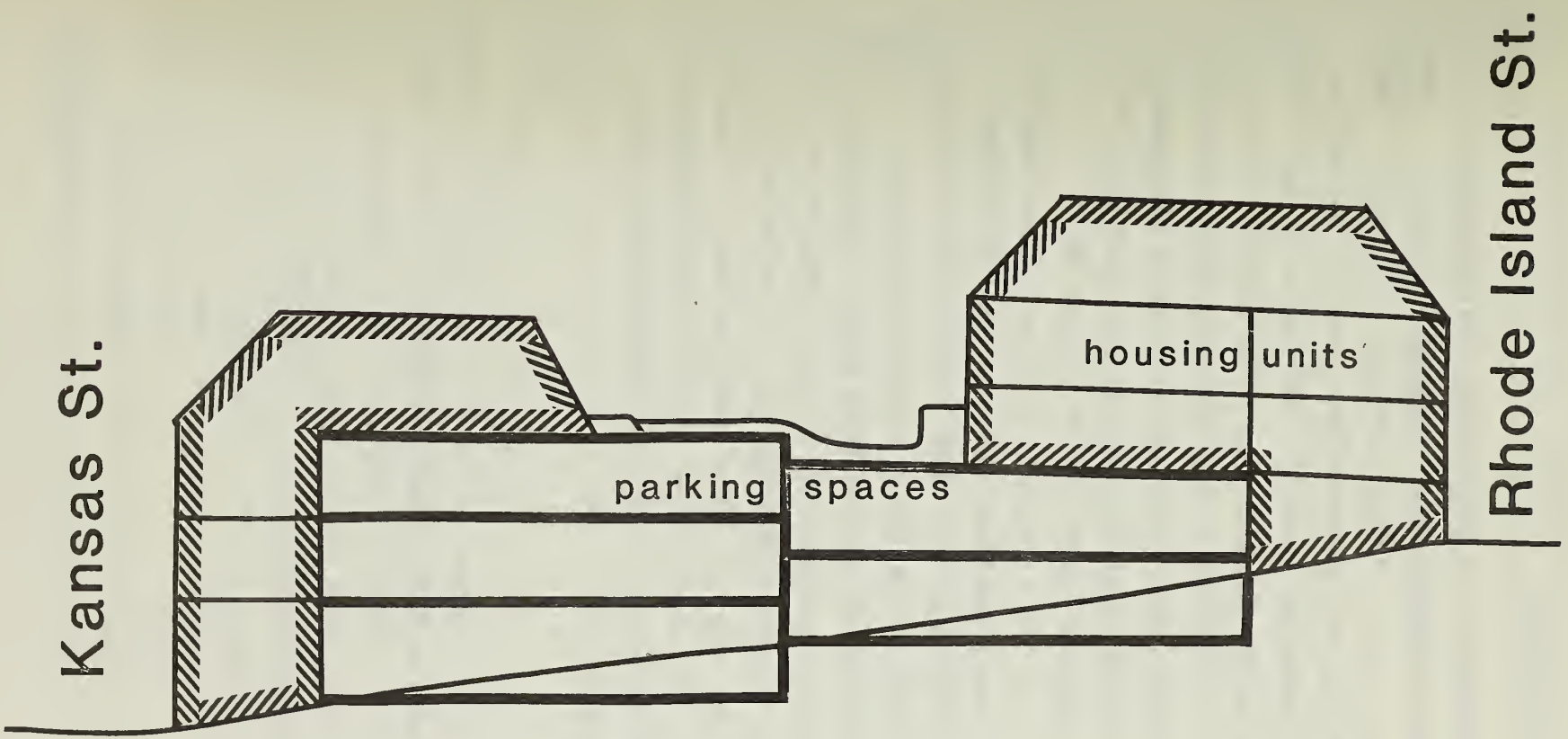
The socioeconomic impacts of this alternative would be the least of any alternative, including the proposed project, because some units could be offered at prices below market rates.

While this alternative would be in greater compliance with Master Plan policies regarding home ownership opportunities and larger-sized units than the other alternatives, the design would not conform to the character of present development in this neighborhood.

If no commercial space were included, this alternative would result in an average 500 weekday vehicular trips, 240 less than the expected 740 with the proposed project. Other impacts associated with such a project (for example, parking, water use and energy consumption) would be increased by about one-half because of the additional 63 units. If the same amount of commercial space as proposed were included, 370 additional trips per day would be expected, for a total of 870 trips. Adding 40 commercial and residential delivery trips would give 910 total trips or 22% more than the proposed project. Parking demand would probably saturate parking on the streets bounding the project.

This alternative was rejected because it would be out of scale with the neighborhood and project sponsor considers that approvals would be more difficult to obtain.

Subalternative. If 20 of the 200 units were to be designed for the elderly, this would decrease required project parking, for this alternative, from 200 spaces to 184 and would probably decrease neighborhood parking impacts. This alternative was discarded for the reasons stated above.



High Density Alternative/Transverse Section

Not to scale

Exhibit No. 24

C. Mixed Housing Types Alternative[1]

Alternative C would contain 132 units, evenly divided (44 each) among three types: market-rate units, moderate income units,[2] and low income[3] rental units. This alternative would have the same number of units as the proposed project and would be built on the same site with a similar design. Market rate and moderate income condominiums would be combined with Section 8[4] subsidized low income rental units owned and operated by the project sponsor or an independent entity created for the purpose.

HUD[5] Secton 8 funds could be used for family housing that contains no more than 20% 1-bedroom units and at least 5% 3-bedroom units. Section 8 is a rent subsidy program under which rent in excess of 25% of a low-income household's monthly income can be paid by HUD. The maximum rent for such units, called the Fair Market Rent (FMR), is given in Table 12, page 104. The proposed project would contain about 32% studios plus 1-bedroom units and 7% 3-bedroom units, so the unit mix would have to be shifted or a disproportionate fraction of the larger units would have to be Section 8 units. If the unit mix were shifted to more 2-bedroom units without changing the design (changing the design would decrease the amount of interior courtyard space), then room size in the units would decrease.

TABLE 12: MAXIMUM HUD FAIR MARKET RENTS

	Elevator (2-4 Stories)	Walk-Up
Studio	$512	$461
1-bedroom	612	534
2-bedroom	782	697
3-bedroom	961	849

Before approving a project such as Alternative C, HUD would consider the feasibility of the project, taking into consideration such factors as the number of subsidized units already in the area, the marketability of the project and the possibility of combining rental and sale units.

The 44 units of moderate income housing, to be affordable, could vary in cost depending on the size of the family and where in the 80 to 120% range household income might be. The limit of affordable housing cost for a moderate income household would be about 3 times the annual income, or $85,000.[6] In the proposed project some of the 1-bedroom units would be within this range and the rest of the units would be above the price range for moderate income housing.

Assuming that the unit mix were not changed, the 44 Section 8 units would have to be made up of 3 three-bedroom, 33 two-bedroom and 8 one-bedroom units, leaving 13 studios, 21 one-bedroom units, 48 two-bedroom and 6 three-bedroom units to divide between moderate and market rate housing. Further assuming the maximum cost of $85,000 for all the moderate income units, regardless of size, as a rough estimate the maximum sales income from the market rate and moderate income units would be as shown in Table 13.

Direct sales income would be about half of the income of the proposed alternative, and about 60% of the project development costs.

Assuming that HUD maximum rents would be charged in all the rental units and making conservative cost estimates,[7] net rental income would be as indicated in Table 14, page 106.

Assuming constant 1981 dollars, it would take about 23 years to pay the remaining 40% of the cost of the development, without taking into account financing costs. In the first 20 years net rent would be $5,020,000, leaving a minimum loss to project sponsor in 20 years of roughly $780,000; debt service would be an additional loss.

Project sponsor has rejected this alternative as economically unfeasible.

TABLE 13: ALTERNATIVE C MAXIMUM POSSIBLE SALES INCOME

	Alternative C		
	Moderate Income	Market Value	Proposed Project
No. studio units/ $ per unit	6/$85,000	5/$106,000	13/$106,000
No. 1-bedroom units/ $ per unit	10/$85,000	11/$ 82,000	29/$ 82,000
No. 2-bedroom units/ $ per unit	24/$85,000	24/$133,000	8/$133,000
No. 3-bedroom units/ $ per unit	3/$85,000	3/$191,000	9/$191,000
Total units/total $ sales value	44/$3,740,000	44/$5,200,000	
Alternative totals	88/$8,940,000		132/$16,200,000

TABLE 14: MAXIMUM POSSIBLE SECTION 8 INCOME PER YEAR

	$ Monthly Rent	$ Annual Rent	Net Annual Rent
8 one-bedroom units	$ 4,270	$ 51,300	$ 36,000
33 two-bedroom units	23,000	276,000	193,000
3 three-bedroom units	2,500	31,000	22,000
Total annual net rent			$251,000

Notes: Mixed Housing Types Alternative

1. This is similar to an alternative proposed by the Potrero Hill Community Development Corporation at a 7 July 1980 meeting of the Potrero Hill Advisory Committee.

2. Moderate income households are defined by HUD as households whose income is between 80 and 120% of the HUD-determined median income ($23,400) for the San Francisco Standard Metropolitan Statistical Area (SMSA). A family of 4 with a household income between $18,700 and $28,100 would currently qualify as moderate income.

3. Low income is defined by HUD as households whose income does not exceed 80% of the median income for the SFSMA, as determined by HUD. Median income for a family of 4 is currently $23,400 per year. A family of 4 with a household income of up to $18,720 per year would currently qualify as low income. HUD expects these figures to be revised in July 1981.

4. Section 8 of the Housing and Community Development Act of 1974, usually referred to as "Section 8."

5. HUD information in this section is from a telephone conversation between EIR consultant Kreines and Kreines and Steve Grossman, Housing Representative, San Francisco Area, HUD, 3 February 1981, except where otherwise indicated.

6. Robert Jolda, Economist, Economic and Market Analysis Division HUD, San Francisco Area Office, telephone conversation with Bendix Environmental Research, Inc., on 11 February 1981. This limit drops during periods of high interest rates so it is possible that none of the units in the proposed project would qualify as moderate income.

7. Assuming 10% management cost, 5% repair and maintenance cost, 10% utility cost, and 5% taxes.

D. No Project

The no project alternative would be inconsistent with the Master Plan, Residence Element, policy to "Encourage the conversion of underused non-residential land to residental use...", would provide no housing, and would yield no profits to the sponsor. There would be no construction or operation impacts associated with new development.

Deferral of a development decision would leave options for use of the site open for the future. Because this site is surrounded on 3 sides by residential development, it is unlikely that a new industrial use would be considered appropriate there. As there is commercial development 3 blocks east and west of the site, it is also unlikely that an entire block of commercial use would be considered by developers interested in the site. City policy, both in the Master Plan and in Proposition K, approved by City voters on November 4, 1980, encourages provision of new housing in the City. Whenever the decision is made to permit development of the site, residential or residential plus commercial development are the uses most likely to be approved. See Impacts Chapter Section M. for future construction in San Francisco.

The site is now vacant, and recent vandalism is evident throughout the interior of the structures. As there are hazardous substances, such as asbestos and PCBs, on the site, the property could have greater impacts on human health and safety with the no project alternative.

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APPENDICES

A. Proposed Project Costs

B. Traffic

C. Chemical Data

1. Chemicals Found on Project Site
2. Metal Compounds Used in Paint Pigments
3. Soil Concentrations of Elements Found On Site
4. Location of Core Samples
5. Site Distribution of Arsenic
6. Site Distribution of Cadmium
7. Site Distribution of Chromium
8. Site Distribution of Copper
9. Site Distribution of Lead
10. Site Distribution of Mercury
11. Site Distribution of Zinc

APPENDIX A

Projected Project Costs

APPENDIX A

Proposed Project Costs

Basic Construction	$9,756,000*
Land Cost	1,250,000
Land Carrying Cost	567,000
Demolition	300,000*
Site Preparation	175,000*
Architecture	325,000
Engineering	140,000
Legal	35,000
Soils	20,000
Marketing:	
Sales/Models	200,000
Financing	
Construction Loan 2pts	280,000
End Loans 1 pt	210,000
Interest during Construction	1,300,000
Homeowners Dues (by Developer)	110,000
Total Development Cost	$14,668,000

*Construction costs

APPENDIX B

Traffic

LEVELS OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS*

Level of Service A

Level of service A describes a condition where the approach to an intersection appears quite open and turning movements are made easily. Little or no delay is experienced. No vehicles wait longer than one red traffic signal indication. The traffic operation can generally be described as excellent.

Level of Service B

Level of service B describes a condition where the approach to an intersection is occasionally fully utilized and some delays may be encountered. Many drivers begin to feel somewhat restricted within groups of vehicles. The traffic operation can generally be described as very good.

Level of Service C

Level of service C describes a condition where the approach to an intersection is often fully utilized and back-ups may occur behind turning vehicles. Most drivers feel somewhat restricted, but not objectionably so. The driver occasionally may have to wait more than one red traffic signal indication. The traffic operation can generally be described as good.

Level of Service D

Level of service D describes a condition of increasing restriction causing substantial delays and queues of vehicles on approaches to the intersection during short times within the peak period. However, there are enough signal cycles with lower demand such that queues are periodically cleared, thus preventing excessive back-ups. The traffic operation can generally be described as fair.

Level of Service E

Capacity occurs at level of service E. It represents the most vehicles that any particular intersection can accommodate. At capacity there may be long queues of vehicles waiting up-stream of the intersection and vehicles may be delayed up to several signal cycles. The traffic operation can generally be described as poor.

Level of Service F

Level of service F represents a jammed condition. Back-ups from locations downstream or on the cross street may restrict or prevent movement of vehicles out of the approach under consideration. Hence, volumes of vehicles passing through the intersection vary from signal cycle to signal cycle. Because of the jammed condition, this volume would be less than capacity.

* City and County of San Francisco, Department of Public Works, Traffic Engineering Division

VEHICLE VOLUME

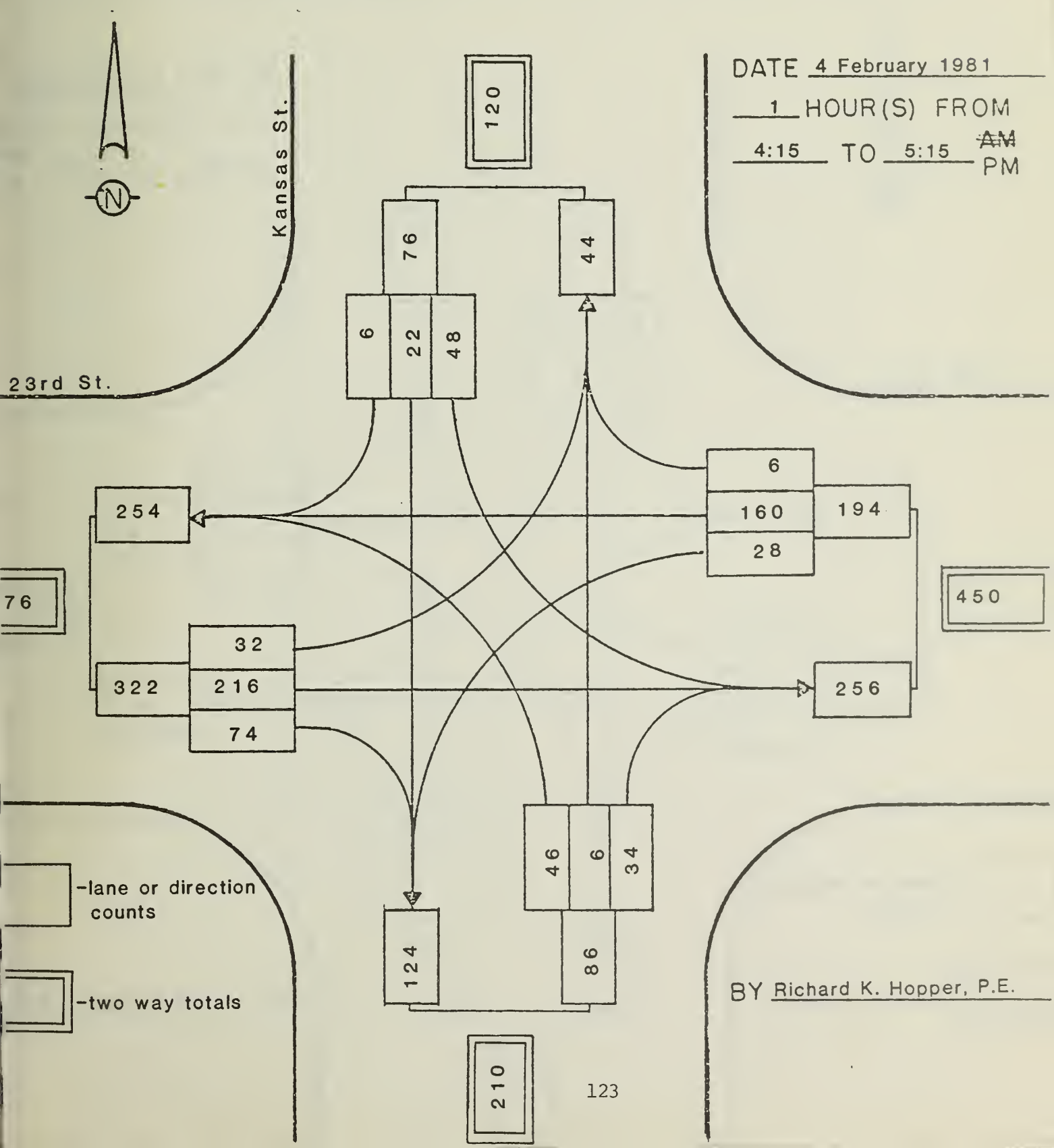
Graphic Summary Sheet

LOCATION 23rd St. & Kansas St.

DATE 4 February 1981

1 HOUR(S) FROM

4:15 TO 5:15 ~~AM~~ PM



BY Richard K. Hopper, P.E.

VEHICLE VOLUME

Graphic Summary Sheet

LOCATION 24th St. & Rhode Island St.

DATE 4 February 1981

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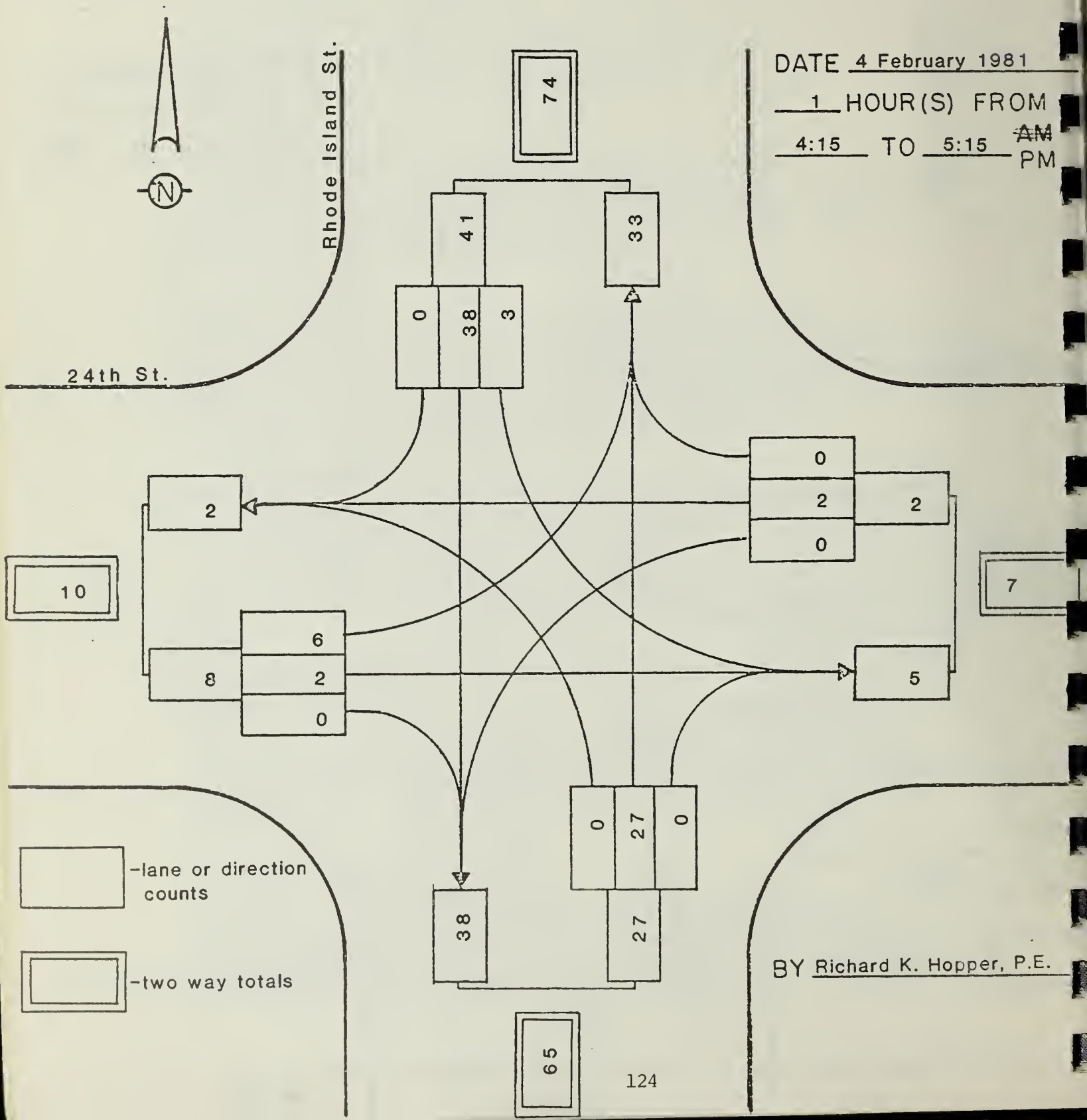

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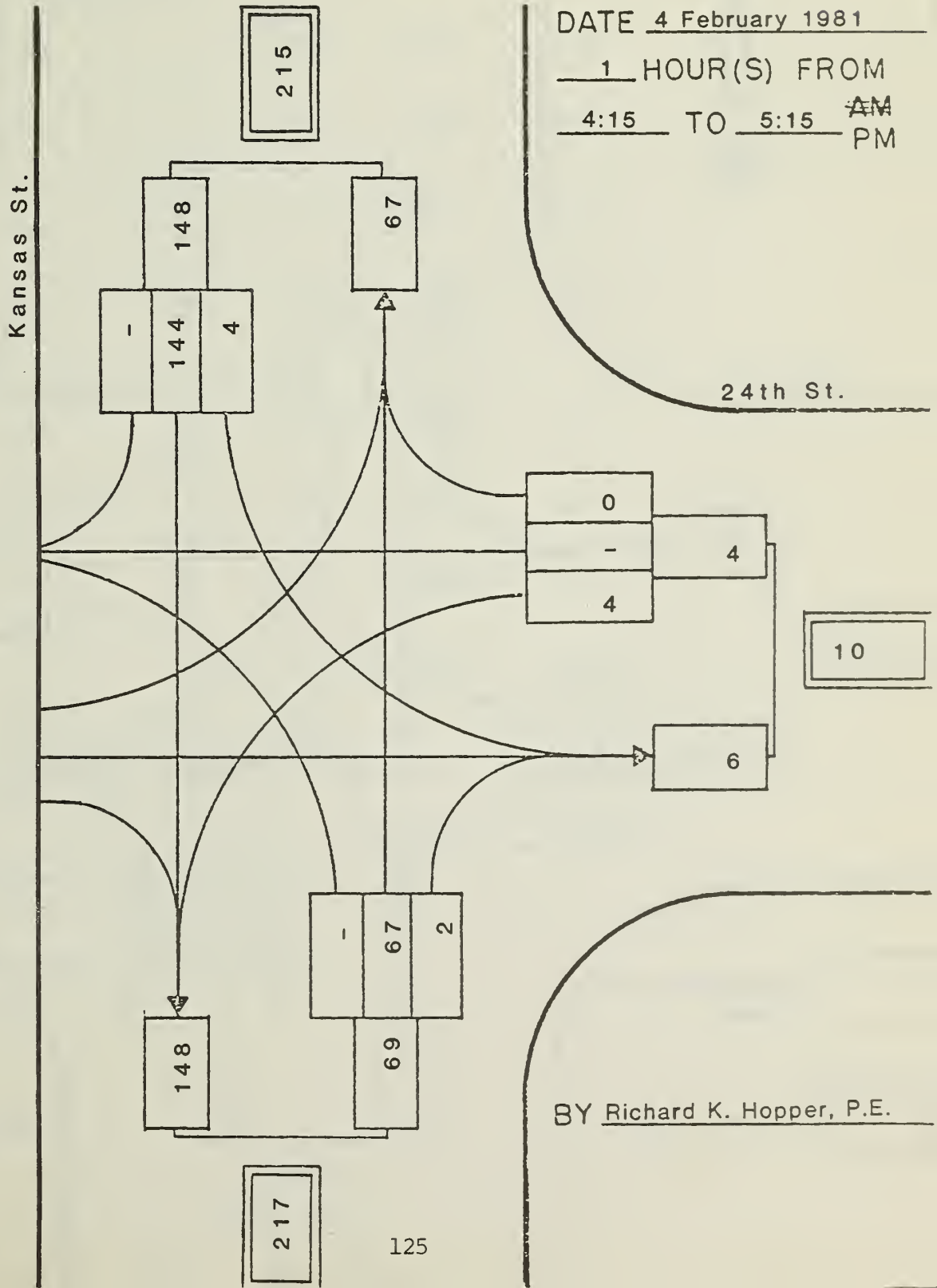


-lane or direction counts

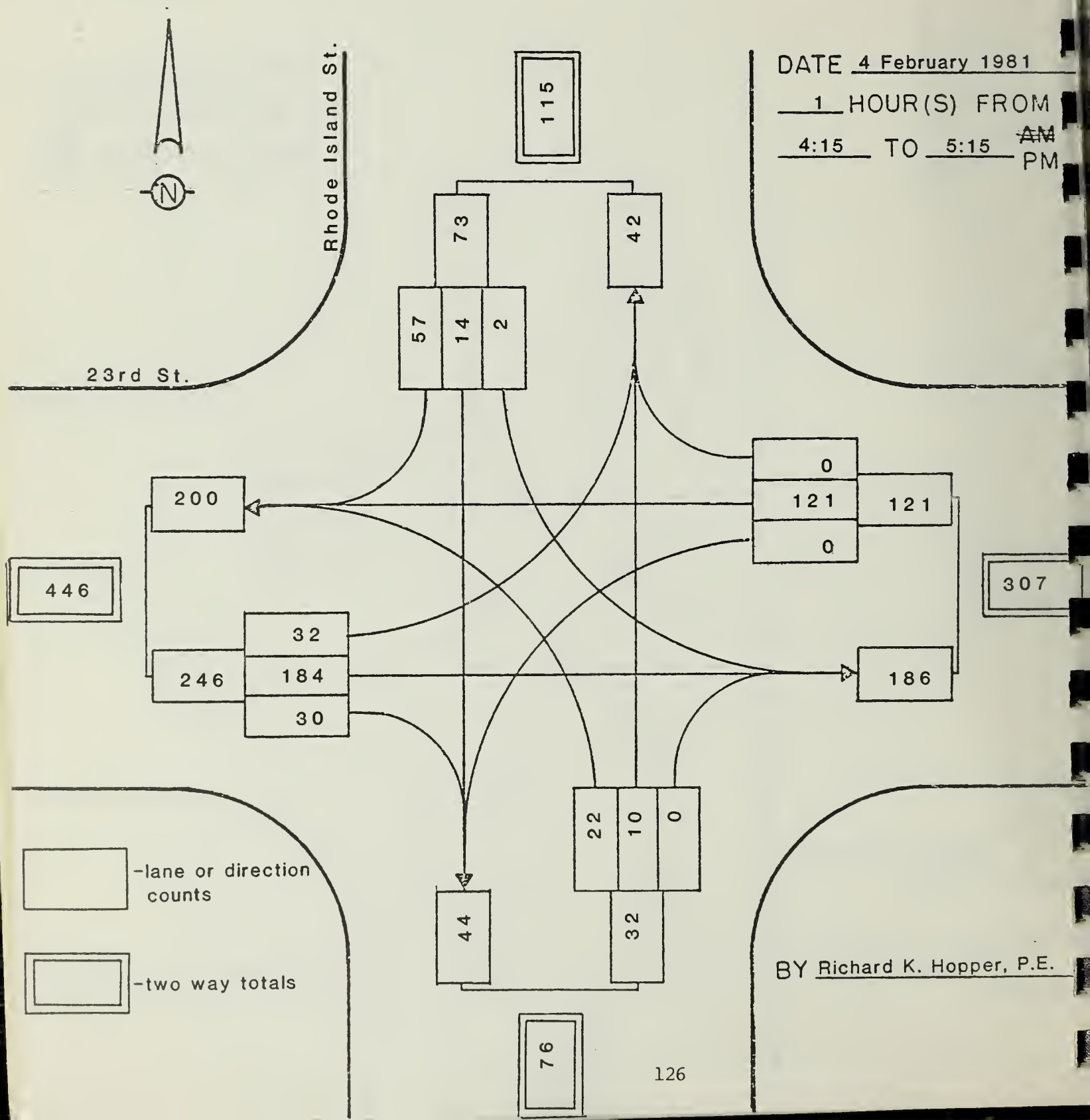
-two way totals

BY Richard K. Hopper, P.E.

VEHICLE VOLUME

Graphic Summary Sheet

LOCATION 23rd St. & Rhode Island St.



DATE 4 February 1981

1 HOUR(S) FROM

4:15 TO 5:15 ~~AM~~ PM

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CAPACITY ANALYSIS SUMMARY OF INTERSECTIONS
ADJACENT TO PROJECT SITE

Intersection	Heaviest Traffic	Lightest Traffic	Total	Capacity	Volume/ Capacity	Level of Service
Existing Conditions, 4:15-5:15 p.m.						
23rd St. & Kansas St.	516	162	678	1175*	0.58	A
23rd St. & Rhode Island St.	376	105	481	900**	0.53	A
24th St. & Kansas St.	217	4	221	1000**	0.22	A
24th St. & Rhode Island St.	68	10	78	1000**	0.08	A
With Project Traffic Added, 4:15-5:15 p.m.						
23rd St. & Kansas St.	536	172	708	1175*	0.60	A
23rd St. & Rhode Island St.	374	111	485	900**	0.54	A
24th St. & Kansas St.	230	14	244	1000**	0.24	A
24th St. & Rhode Island St.	73	14	87	930**	0.09	A

* Institute of Transportation Studies, "Fundamentals of Traffic Engineering - 8th Edition," 1973, p. 7-7.

** Institute of Transportation Engineers, "Transportation and Traffic Engineering Handbook," 1976, pp. 347-350.

Source: Richard K. Hopper, Traffic Engineer

APPENDIX C

1. Chemicals Found On Site
2. Metal Compounds Used in Paint Pigments
3. Soil Concentrations of Elements Found On Site
4. Location of Core Samples
5. Site Distribution of Arsenic
6. Site Distribution of Cadmium
7. Site Distribution of Chromium
8. Site Distribution of Copper
9. Site Distribution of Lead
10. Site Distribution of Mercury
11. Site Distribution of Zinc

C.1: CHEMICALS FOUND ON PROJECT SITE.

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
1	1	Grnd.	1-5 gal drum Sol 150, "for pool chlorination," "corrosive"	Jones Chem. Corp., Caledonia, NY	orig.	empty	
2			1-5 gal metal drum "Dromus," coolant, cutting oil		orig.	yes	
3		2	home size bathroom cleaning products		orig.	most	
4		3	2-5 gal plastic cans "Hard Water Rinse Fluid"	Natl. Institutional Food Distributors Associates Inc., Atlanta, GA	orig.	yes	East side of fire escape.
5			1-5 gal plastic drum dark liquid, labelled "poison cleaner"		hand	yes	
6			1-3/4 gal "Lime-A-Way, contains: phosphoric acid "hydroacetic acid"		orig.	yes	Found moved and spilled 18 June. Corrosive. Contact with common metals produces hydrogen which may form flammable mixtures with air. Moderately irritating to eyes, skin, mucous membranes. Safe human exposure limit 0.1 parts per million (ppm) in air. Vapor forms explosive mixtures with air. Dangerous in contact with oxidizing materials. Flash Point 109°F.
7			2-5 gal containers soft brown solid	none	yes		Looks like cooking fat or wax.

CHEMICALS FOUND ON PROJECT SITE, Page 2.

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
8	1	3	1-50 gal cardboard drum Formula 251, boiler cleaner, contains sodium polyacrylate	Garrat-Callahan, Milbrae, CA	orig.	maybe	DOT required label: non-corrosive, non-toxic cleaning compound. pH approx. 8 (slightly basic).
9			1 home-size can Black Flag pesticide		orig.	yes	Some Black Flag products contain DDVP and isopropoxyphenyl methyl carbamate. DDVP produces human blood and skin effects at 1 part per trillion in air and is teratogenic. The carbamate has a safe human exposure limit of 0.5 ppt in air. Can gone as of 20 June 1980.
10		4	1-½ gal can paint remover, contains methylene chloride (dichloromethane)	Montgomery Ward	orig.	yes	Narcotic in high concentrations. Suspected human carcinogen. Human safe exposure limit 1000 ppm.
11		5	bathroom cleaning products		orig.	yes	
12		6	1-5 gal drum paint		none	yes	Near elevator; not in orig. container.
13	2	grnd.	1-1 gal can automotive lacquer		orig.	yes	Near Kansas St. entrance.
14			1-wooden box cleaning products		orig.	most	
15			1-50 gal, blue metal drum		hand	maybe	Labelled 30H with 3 and possibly 0 crossed out and 4 written in.
16			50 to 100 1qt to 1 gal spray & non-spray paint cans		orig.	about ½	

CHEMICALS FOUND ON PROJECT SITE, Page 3

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
17	2	grnd.	2-1 qt to 1 gal paint thinner		orig.	yes	
18			1-55 gal blue plastic drum "Typewash #54A, S.E.X. typewash, "caution combustible"	not on label	yes	yes	
19			Approx 100 gal vat with bottom spigot. Paint?		unlabelled	yes	Part full.
20			3-55 gal drums, "gasoline," "danger flammable"		hand	yes	Part full.
21			1-55 gal drum		unlabelled	yes	
22		2	Assorted pt to gal cleaning products, including ammonia.		orig.	some	Irritant at 20 ppm in air.
23			1-5 gal drum floor wax		orig	?	
24			1-1 gal photographic fixer, contains: sodium thiosulfate, acetic acid		orig.	?	See Item 6.
25			Approx 10-1 qt paint cans		none	yes	
26		3	personal toiletries		orig	mostly	

Item	Bldg	Level	Description	Manufacturer	Label	Opened?	Comments
27	2	4	household size paint & cleaning supplies		orig + hand	mostly	
28	3	grnd (not basement here)	2-1 gal jugs Lucdol, 60% methyl ethyl ketone peroxide (2-butanone peroxide)	Kodak	orig	?	Affects human intestinal tract. Flash Point 21°F. Fire fighting should be done from an explosion resistant location. Carcinogenic in mouse.
			dimethyl phthalate				Teratogen in rat. Irritating to mucous membranes. Nervous system depressant. Human permissible exposure limit 5 ppm. Incompatible with nitrates.
29			8-1 gal "rapid fixer"		orig	some	
30			1-1 gal "Pakosol" print conditioner	Pako Corp., Minneapolis, Minn.	orig	?	
31			2-1 gal containers varnish remover, methylene chloride	Montgomery Ward	orig	?	See Item 10.
32		3	1-1 gal linseed oil		orig	yes	
33		4	1-1 gal "all purpose cleaner"				
34	3,4,5	loading dock	10-50 gal metal drums full of liquid		none	yes	Non-flammable, acidic, similar contents.
35	4	grnd	1-blue plastic, 50 gal drum		none	no	Near entrance to bldg. 3.

CHEMICALS FOUND ON PROJECT SITE, Page 5

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
36	5	N/A	2-55 gal drums "Swifts Adhesive"		orig	yes	
37			1-5 gal plastic drum "Flexichrome green"		orig	yes	
38			7-55 gal drums "urea resin"	Reichhold Chem	hand	maybe	
39			1-55 gal drum "sand"		hand	maybe	
40			6-55 gal drums iso-butanol		hand	maybe	Flash Point 82°F. Firefighting should be done from an explosion-resistant location. Carcinogenic in rat. Mildly irritating to skin and mucous membranes. Narcotic in high doses.
41			2-55 gal drums "White glue"		hand	yes	
42			9-5 gal cans cement sealer, "Steel coat"		orig	maybe	
43			8-5 gal cans Tremco-300, "sealer for concrete floors," contains: urethane, polyester resin, epoxy resin, alkyd resin		orig + hand	maybe	carcinogenic in rat, mouse, guinea pig and hamster. Teratogenic in rat, mouse and hamster.
44			approx 10-1 gal cans latex stain		orig	no	

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
45	5	N/A	approx 50-1 qt cans paint		orig	no	
46			1-55 gal drum "pine glaze," contains petroleum distillates and/or industrial solvents	Lily Industrial Coatings, 901 W Union St, Montebello, CA	orig + hand	yes	
47			2-3 gal containers "Plastiglaze type c, aluminum grade"		orig	yes	
48			2-55 gal drums "Polalyte Resin solution, contains: styrene, and/or "acrylite monomers"	Reichold, LA	orig	maybe	Flash Point 90°F. Forms explosive mixtures with air. Vapor may travel considerable distance to source of ignition then flash back. Fire-fighting should be done from an explosion resistant position. Eye and respiratory irritant. Keep away from oxidizing agents.
49			1-55 gal drum "carpet adhesive"		hand	yes	Found spilled on 20 June; is adhesive.
50			11-55 gal cardboard drums, 1 labelled Dylyte expandable polyester; open drums contain powder		orig	yes	

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
51	5	N/A	1-55 gal drum "lube oil"		stencil	yes	Not full.
52			1-55 gal drum "Aluminum sealer"	Parwaf Mfg. LA	orig + hand	yes	
53			1-5 gal drum "darkroom"		hand	yes	
54			8-55 gal drums stucco patch		stencil	maybe	
55			1-55 gal cardboard drum spackling powder		orig?	yes	South side of bldg. May contain asbestos. Found spilled 20 June.
56			18-1 gal cans Dursban 2E insecticide (lorsban, Chlorpyrifos)	Dow	orig	no	Soil insecticide for control of wire worms, cutworms, corn rootworms. Occupational exposure limit 0.2 ppm in air. Cans nearly rusted through.
57			15-55 gal, old, metal drums	Orig label Harvest Base Co.		yes	No indication of nature of contents. Some with red spray paint crosses.
58	6	grnd	2-55 gal plastic drums clay slip		hand	maybe	One found spilled 20 June.
59			approx 20 bags fertilizer, ammonium nitrate		orig	some	Explosive. Organic matter can sensitize to more readily explodable state. Melts at 337°F. Emits toxic gases on decomposition. Responsible for 1947 Texas City disaster.
60	8	grnd	2-55 gal drums "diatomaceous earth"		hand	yes	Made up of fused silica, spherical submicroscopic particles under 0.1u.

Item	Bldg.	Level	Description	Manufacturer	Label	Opened?	Comments
61	10&11	grnd	1-1 gal bottle hydrochloric acid		orig	yes	Found moved on 20 June 1980. Fatal at 1500 ppm in air. High reactivity. Contact with common metals produces hydrogen which may form explosive mixtures with air. Keep away from oxidizable materials.
62			1-1 gal container soda ash (sodium carbonate)		orig	yes	Eye and skin irritant.

C.2: Toxicity of typical inorganic paint pigments.

Common Name	Chemical Name	Chemical Formula	Color	Human Target Organs	Occupational Permissible Exposure Limits in milligrams/cubic meter air[1]	Comments
Litharge	lead oxide	PbO	yellow	blood, nervous system, kidney	0.002	
Orpiment	arsenic trisulfide	As_2S_3	yellow	intestinal tract, skin, nervous system	0.002	Now little used; carcinogen[2]
Paris Green	copper acetate meta-arsenate or copper, bis (acetato) hexa-meta-arsenito-tetra-	$Cu(C_2H_3O_2)_2 \cdot 3Cu(AsO_2)$	green	intestinal tract, nervous system	0.002	
Realgar	arsenic disulfide	As_2S_2	brownish-red	intestinal tract, skin, nervous system	0.002	Now little used; carcinogen
Cadmium Yellow	cadmium sulfide	CdS	yellow	kidney, lungs	0.04	carcinogen
Cadmium Red	cadmium sulfide/cadmium selenide mixtures	CdS CdSe	light red to maroon	kidney, lungs, liver, prostate, blood	0.04	carcinogen
Chrome Yellow	lead chromate	$PbCrO_4$	yellow	blood, nervous system, kidney	0.05	carcinogen
Red Lead	lead oxide	Pb_3O_4	red	kidney, blood, nervous system	0.05	used to protect steel

C.3: Comparison of normal soil concentrations of some elements and minimum and maximum concentrations found on site.

Element	Normal Soil Range ppm	Site Values Minimum ppm	bore #	depth	Maximum ppm	bore #	depth
Cadmium	0.1 - 7[1]	<0.6	4	3 feet	17	S	0 feet
Chromium	trace - 250[5]	34	3	4.3	1000	8	9.4
Copper	2 - 150[1]	7.9	4	3	160	S	0
Lead	1 - 200[3,4]	5.6	1	15.3	4800	S	0
Mercury	0.1[2]	0.12	8	9.4	8.6	S	0
Zinc	trace - 250[5]	19	8	9.4	4200	S	0
Arsenic	1 - 70[6]	3.5	3	4.3	60	4	15

1 "The Nature and Properties of Soils," 8th Ed. Nyle, C. Brady, MacMillan 1974.

2 Average concentration. "Mercury in Your Environment," Bendix, Selina, Oceanic Society, 1971, p.1.

3 Zimdahl, Robert L. & Skogerboe, Rodney K. "Behavior of Lead in Soil," Environmental Science and Technology, 11:1202-1207(1977).

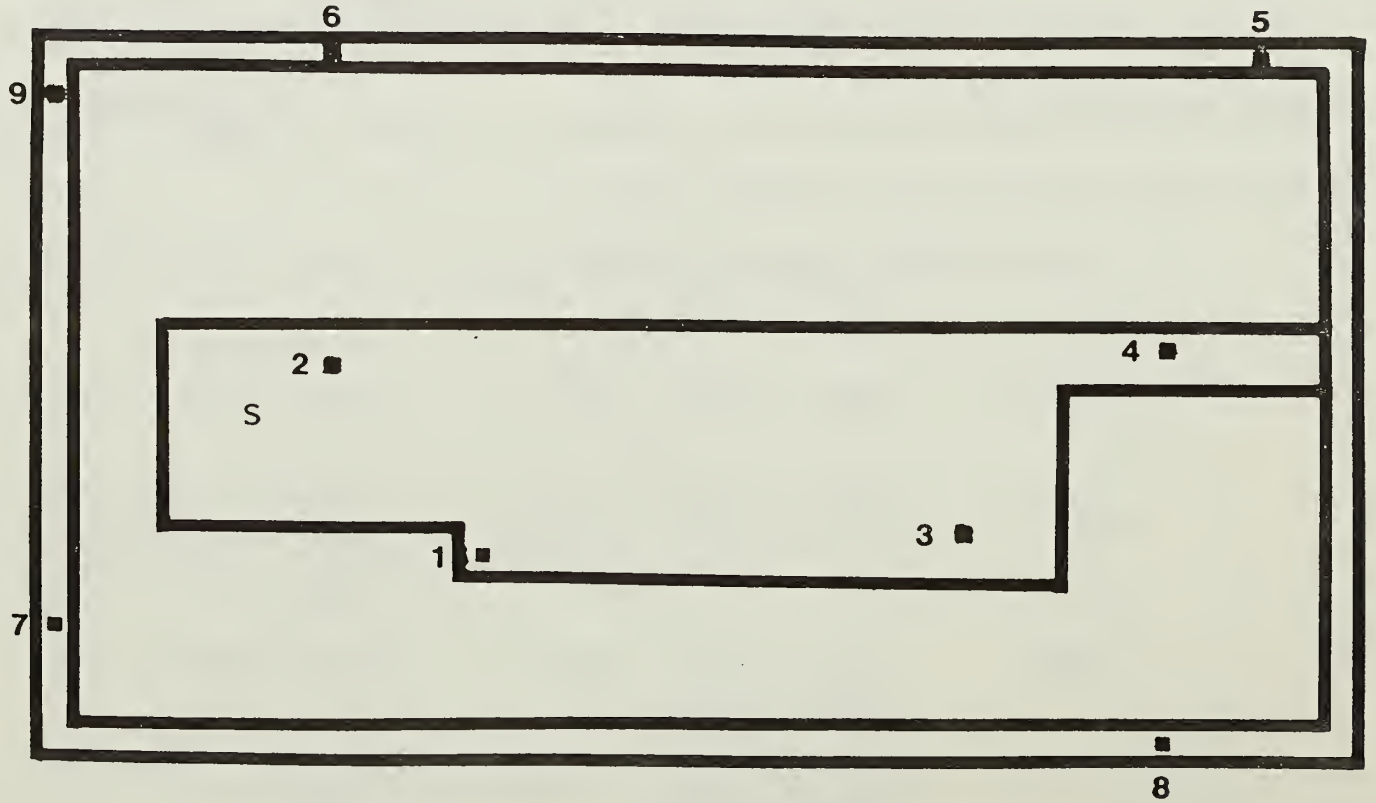
4. Soil used to replace lead-contaminated soil in an Oakland park was found to have 15-19 ppm lead* (*Wesolowski, Jerome, J., "The Identification and Elimination of a Potential Lead Hazard in an Urban Park," Archives of Environmental Health, 34:413-418(1979)).

5 Baetjer, Anna M., "Chromium," Proc. Symp. Toxicity of Metals, Industrial Health Fdn, 1975.

6 Bear, Firman E., "Chemistry of Soil," p. 366, 2nd Ed., 1964.

S = surface sample.

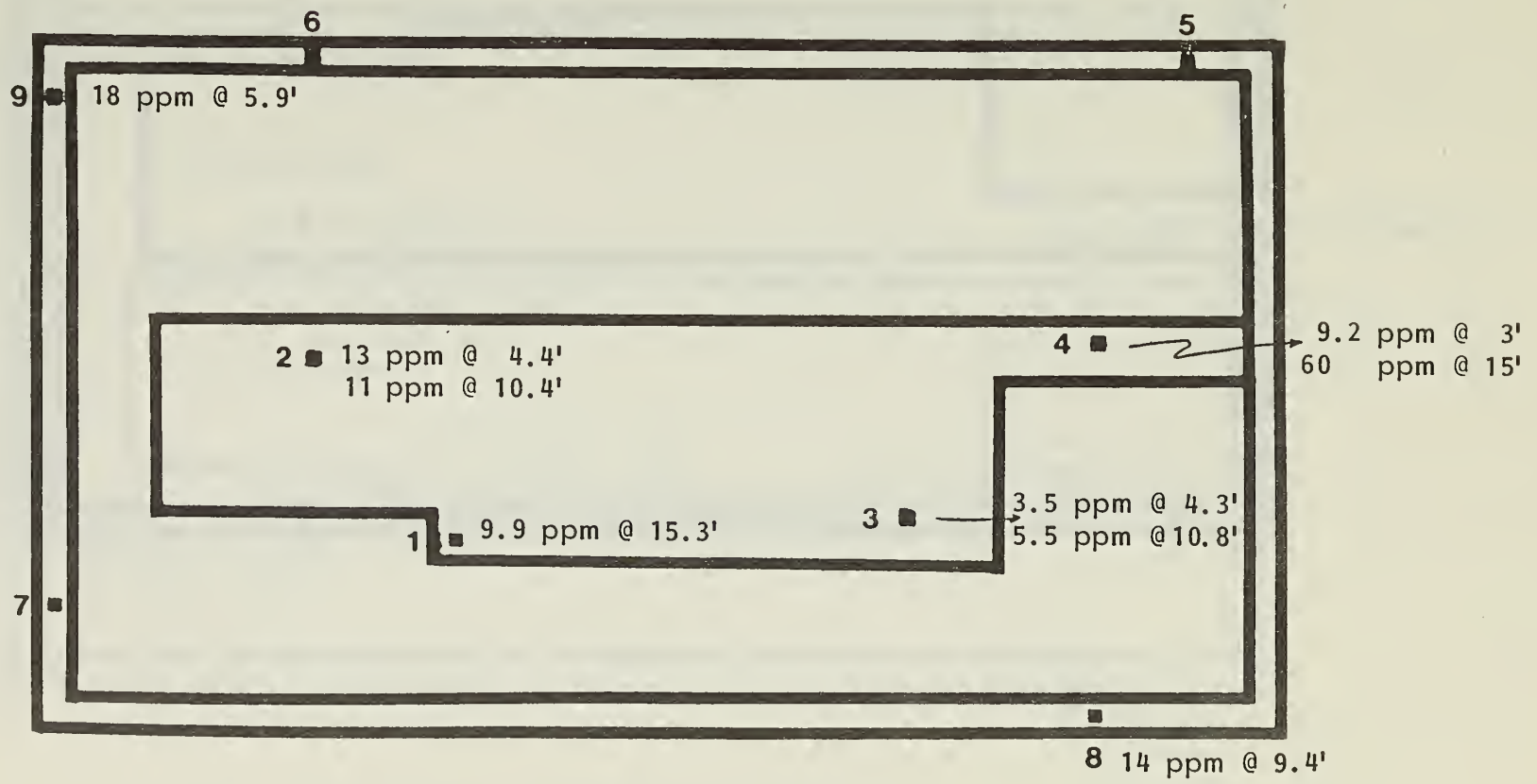
C.4: Location of Core Samples.



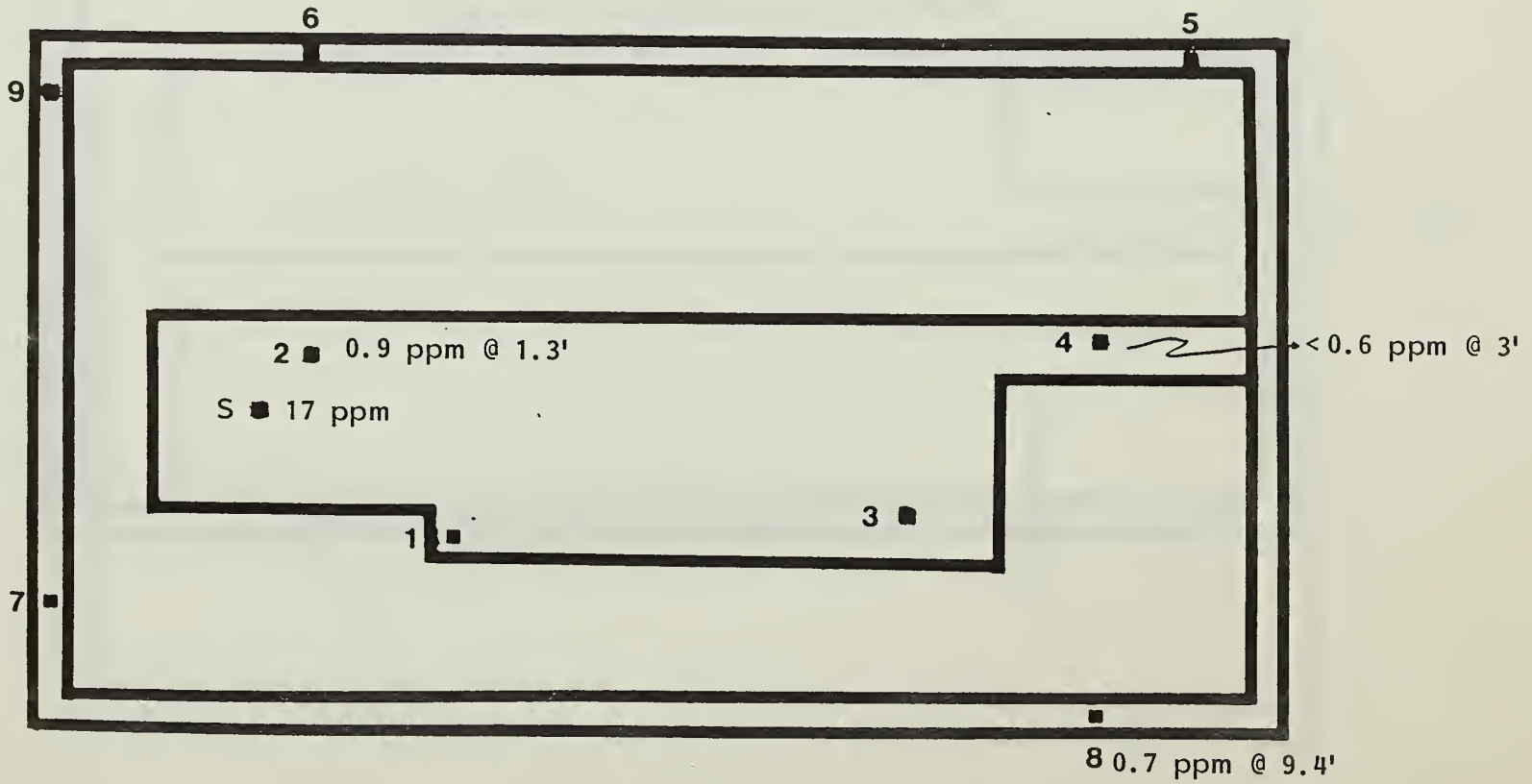
S: Location of Surface Sample

N

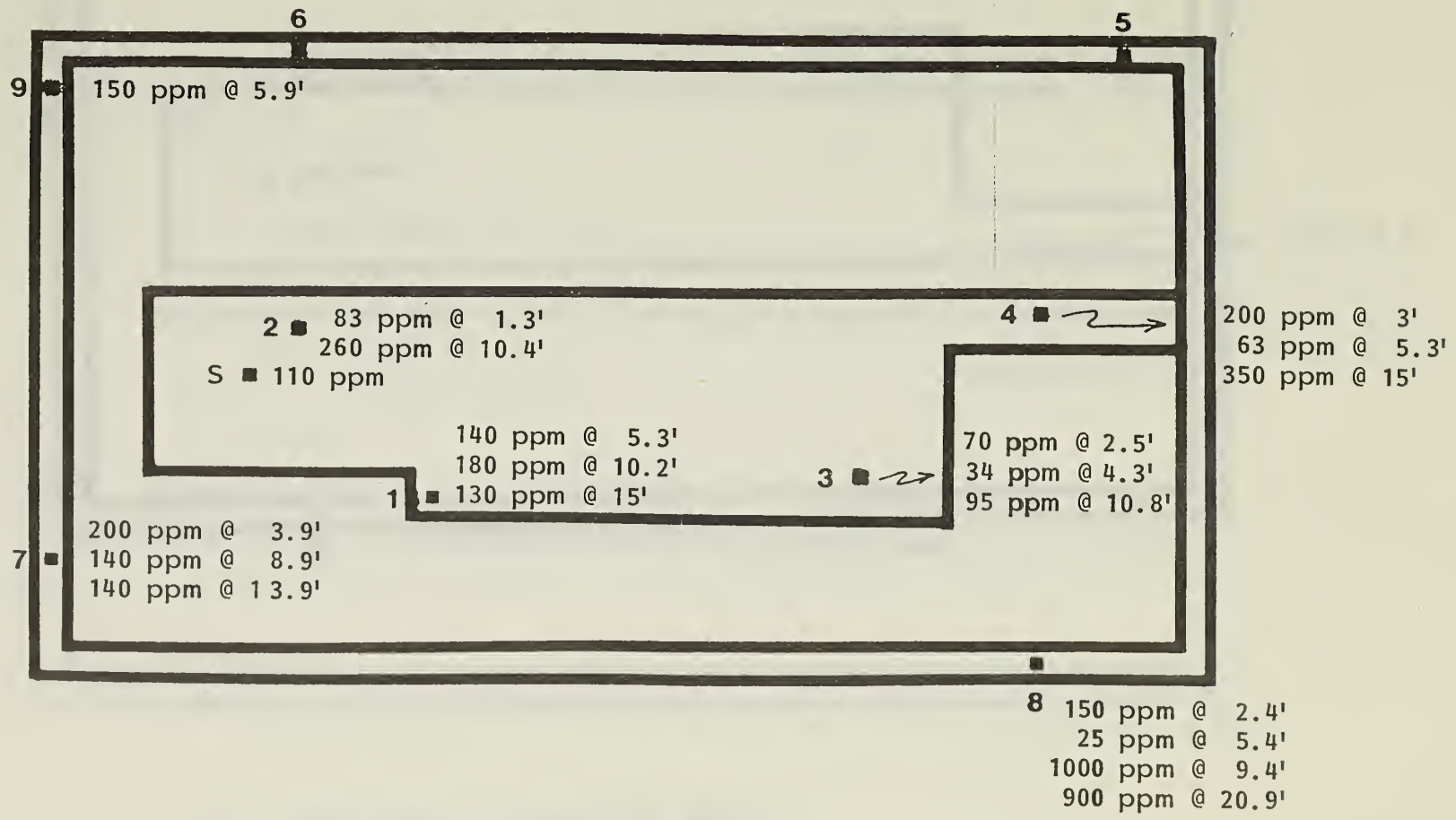
C.5: Distribution of ARSENIC on the site.



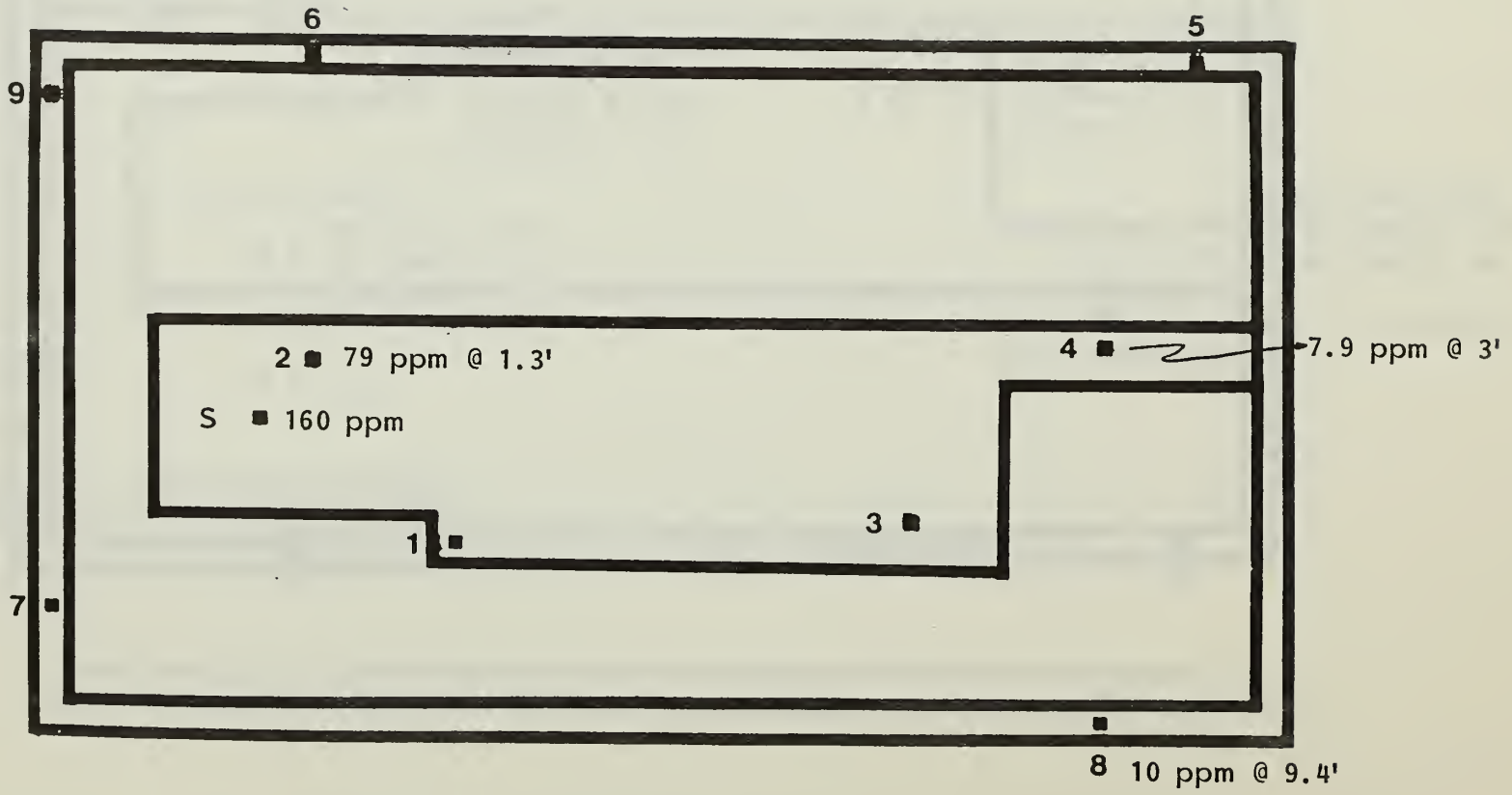
C.6: Distribution of CADMIUM on the site.



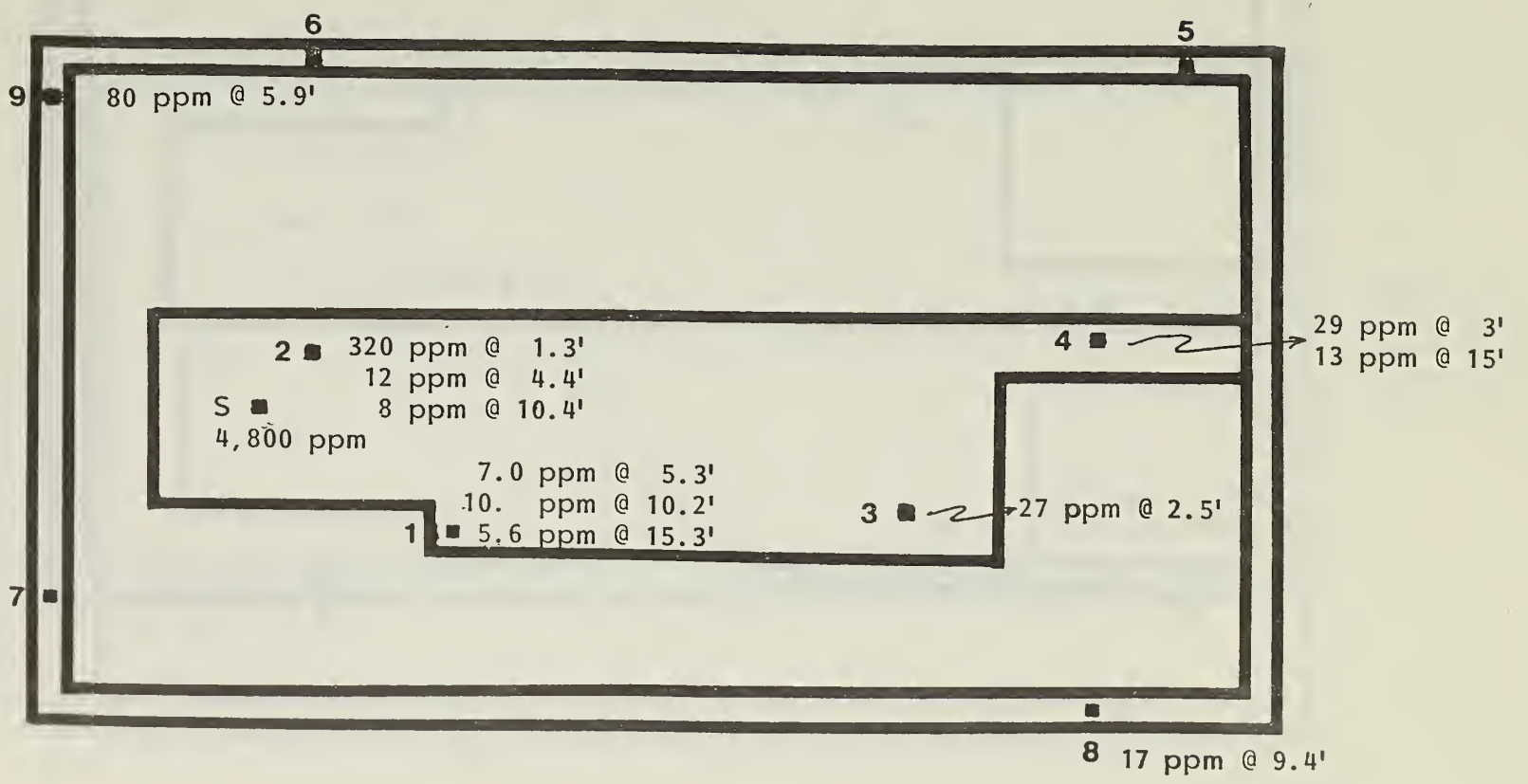
C.7: Distribution of CHROMIUM on the site.



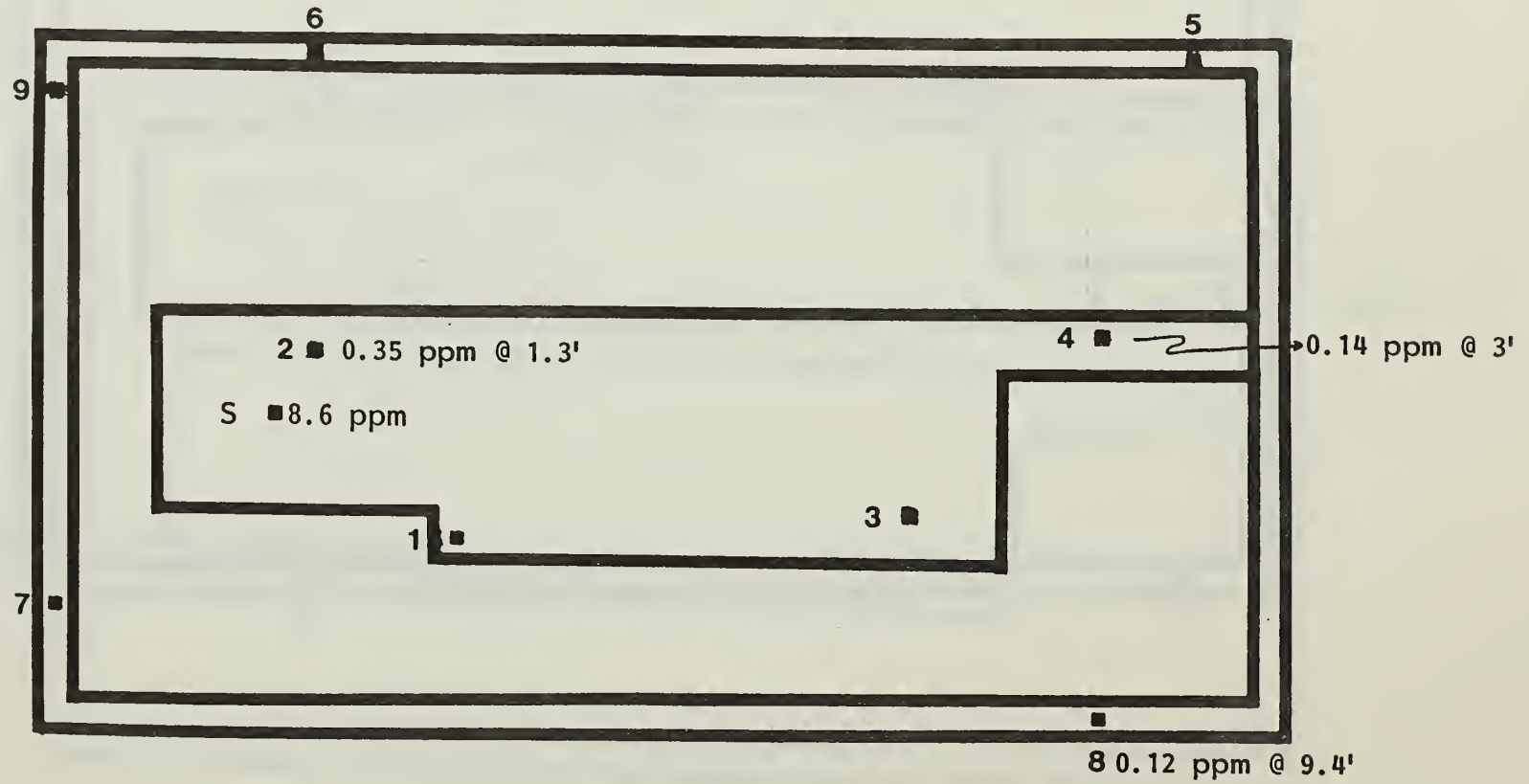
C.8: Distribution of COPPER on the site.



C.9: Distribution of LEAD on the site.



C.10: Distribution of MERCURY on the site



C.11: Distribution of ZINC on the site.